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The War of the Words by Gayle Van Horn

In response to the developments in the Persian Gulf which give little sign of an early conclusion, Monitoring Times has made a decision to sacrifice the scheduled line-up of October features to bring you an intensive series on radio monitoring and the Gulf crisis.

Broadcast loggings editor Gayle Van Horn relates a short history of the Iraqi/Kuwait dispute. There are many players in this critical game, and each one has a broadcast station; Gayle provides the frequencies to tune them in and helps explain where each one stands in its historical perspective so you can better understand: For whose ears is the broadcast intended? What are the stakes, as far as the country of origin is concerned? Can this broadcast be believed?

Only Radio Kuwait is silent, the studio stripped of all equipment.

The Gamble in the Gulf by Larry Van Horn

The build-up of United States troops in Saudi Arabia has brought the utility monitor the most activity on military communications channels since World War II. You want frequencies? Utility World editor Larry Van Horn has got 'em -- aeronautical, maritime, press -- Here's where to start searching for the latest action.

Global Navies in the Persian Gulf by James T. Pogue

Enforcing the embargo against Iraq has involved the navies of several countries besides the United States. James Pogue provides not only the names, callsigns and functions of the ships sent to the Persian Gulf, but the frequencies for the naval communications stations of eleven participating countries as well.

Tips on Hearing More A Forum with the Experts

Now that you’re armed with background history and you know who to listen to on what frequencies, you may find it’s not all that simple. How can some monitors seem to be right on top of the action so quickly? And they must have some really fancy equipment, right? Not necessarily; Take some tips from some folks who’ve been doing it long enough to know.
And more ...

Readers attending the MT Convention will have the opportunity to meet this man, Alan Weiner, (former) pirate broadcaster. Watch for a report on the Convention in November.

Utility World (page 28) adds the Israeli Moshad frequencies to monitor, as well as being jam-packed with information on all kinds of subjects.

"T for Texas, T for Tennessee," says the old bluegrass song. We cover 'em both this month; it's a bonanza for federal frequency monitors from Texas (page 42) and for AM and FM listeners visiting Tennessee (on their way to the Convention, naturally) on page 52.

New to shortwave monitoring? You may be completely mystified by the variety of whirs, squeals, beeps, clicks and otherwise weird noises that are produced by your set. Most of these noises are actually various communication modes that just require proper equipment to decipher them. "Uncle Skip" has given you a guide to their identification on page 40.

The Realistic PRO-2006 has proven to be such a popular receiver we thought it deserved a full review, even though it's not a new arrival (page 90). On the other hand, Magne covers the third and last of the new ICOM receivers previously announced but never arrived (in North America)--the IC-R100 (page 88). Check out the back pages of MT for projects on all levels for the ham, the shortwave and the scanner listener--there's something for everyone in MT.

If the features on the Persian Gulf have intrigued you, you may also want to pay special attention to several of our regular columns. John Santosuosso enlarges on the subject of our opening article; his "Outer Limits" (page 54) is a real eye-opener on exactly what people are hearing from the mid-East - licensed, clandestine and jammers! Glenn Hauser's Shortwave Broadcasting column (page 24) also reflects actual loggings.

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MONITORING TIMES

MONITORING TIMES (ISSN: 0889-5341) is published monthly by Grove Enterprises, Inc., Brasstown, NC, USA.

Address: P.O. Box 98, 140 Dog Branch Road, Brasstown, NC 28902
Telephone: (704) 837-9200
FAX: (704) 837-2216 (24 hrs)

Subscription Rates: $18 in U.S. and $26 elsewhere; Label indicates last issue of subscription

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Correspondence to columnists should be mailed c/o Monitoring Times. Any request for a personal reply should be accompanied by an SASE.

Second class postage paid at Brasstown, NC, and additional mailing offices.

POSTMASTER: Send address changes to Monitoring Times, Post Office Box 98, Brasstown, NC 28902.

www.americanradiohistory.com
**LETTERS**

Tom McMillen, WB3HGW, is an active DXer and net control operator. During his 15 years as a ham, he has been honored by his peers for the service he performs. Despite this background, McMillen faced an enormous challenge in pursuing his hobby.

It wasn't that he was paralyzed and confined to a wheelchair, although his handicap and epilepsy prevented him from achieving the 13 words-per-minute required for a license upgrade from Technician to General. It was the U.S. Federal Communications Commission who declined McMillen's request for a waiver of the code exam, allegedly advising him at one point not to "rock the boat."

Another time, the Federal Government implied that they were intimidated by the American Radio Relay League, reportedly saying that the "...ARRL was against..." policy changes allowing waivers for handicapped hams.

Here's the great part of the story. McMillen wasn't discouraged by such churlish behavior. He decided to call in the artillery, writing a letter to King Hussein of Jordan, who holds ham call JY1.

A Jordanian official replied to the letter sympathetically, saying that the king had contacted President George Bush to request intervention on McMillen's behalf. President Bush then apparently referred Hussein's letter to the State Department, where officials responsible for Jordanian affairs reviewed the case together with members of the National Security Council.

Although the FCC did not say exactly how the McMillen case was handled, Fred Maia of the WSYI Report says that it appears that the State Department or President Bush's office, or both, contacted top leadership of the FCC, who then told amateur radio regulators to change their policy right away. This summer, McMillen received a phone call from the Commission, telling him that his request for waiver of the 13 word-per-minute code test was granted.

Bill Bogs relates how he was searching the military band around 240 to 300 MHz using his Yaesu FRG 9600 and Radio Shack PRO-2005 when the '2005 stopped on 257.90. "I punched the frequency into the '9600 and went back to searching," says Bill.

"To my surprise," continues Bill, "the receivers came alive. It seems that two groups of A-7s, one from Sioux Falls, South Dakota, and the other from St. Louis, Missouri, converged over my location in western Iowa for some mock dogfights and bombing runs. Reception was very good."

"The glossary of terms from the June issue [Milspeak: A Primer] really came in handy and I was able to use it to understand what was going on."

"One of the flights was comprised of four A-7s calling themselves Flight 41 (the group leader) 42, 43, and 44."

"During the dog fights they were practicing angles of attack, converging on the target from different angles. They would call out, 'Bogey! Bogey! Bogey!' indicating use of machine guns, I think. They also used 'Fox-1 Fox-1' and 'Fox-2 Fox-2', indicating missiles."

"Flight 43 was having problems and had to return to St. Louis early."

"After a few more runs, the flight leader called out, 'Knock it off. Knock it off. Knock it off,' and they returned to home base in St. Louis."

"The group from Sioux Falls didn't fare as well. During maneuvers, two A-7s were closing on each other from opposite directions. They clipped wings, suddenly needing 'loud-handles' for a 'nylon let-down.' The two pilots and a news reporter ejected safely with minor injuries. The A-7s were a total loss as they went down near Spencer, Iowa."

"The Milspeak article," concludes Bill, "allowed me to understand what was going on. It is typical of the work done throughout every issue of Monitoring Times. Keep up the good work."

There's no limit to the action you can hear on your radio, Bill. Thanks for sharing the experience. You just have to have patience -- and Monitoring Times. By the way, I think -- and you can never be absolutely sure on these things because their meanings do change -- that "bogey" generally refers to the sighting of the enemy, as in the old World War II movies, "Bogies at 12 o'clock!"

"Who needs a scanner?" asks Mark F. Henning of Hamburg, New York. "During an air show at the Niagara Falls Air Base, one of the security vehicles had the air-to-air communications from the U.S. Air Force Thunderbirds playing out of the PA speaker. And with all the people walking around with handhelds, I was always in ear shot of what was happening. Next year I'll leave the scanner at home and let others run down their NiCads!"

Chances are that most of those people walking the air show with handhelds were Monitoring Times readers. What happens if they read

[Please turn to page 100]
Woodpeckers on the Shortwave Dial

The U.S. Customs service is questioning the utility of using the Over-the-Horizon "Backscatter" radar in their war against drugs. Originally designed for NORAD and intended to provide warning of Soviet Backfire bombers approaching from Mexico, the $242.8 million-range radar project was reportedly shot down by Congress. It resurfaced, last January, as part of President Bush's Drug Control Strategy.

Customs officials, however, say that they don't want the OTH Backscatter radar since aircraft as a means of transporting illegal drugs into the country has been fading in favor of delivery by boat, cargo container, commercial aircraft and motor vehicles. The new radar, says Customs officials, would detect none of these.

Officials further cite a draft report by the General Accounting Office that says OTH Backscatter may not see small low- and slow-flying drug planes anyway.

OTH Backscatter Radar bounces signals off the ionosphere to provide coverage at ranges from 75 to 2,100 miles. If accepted into the war on drugs, the OTH Backscatter radar would constitute nearly half of the Drug Enforcement Administration's total 1990 budget.

OTH Backscatter Radar can disrupt shortwave communications with a rat-a-tat sound often described as an audio "woodpecker."

ANARC Newsletter Ceases Publication

Publication of the Association of North American Radio Clubs (ANARC) Newsletter has been suspended "during the current transition period caused by the resignation of the Executive Secretary."

According to a spokesman for the publication, "we are...not accepting requests for sample copies of the Newsletter nor renewing subscriptions." If the publication is canceled altogether, refunds will be made to subscribers "to the extent possible." Regrettably, no address at which subscribers may request a refund accompanied the announcement.

SPEEDX Raises Subscription Rate

Citing a cash shortfall of some $850,000 last year, SPEEDX treasurer Bob Thunberg has announced a hike in the annual rates that SPEEDX charges its members. The new rates, which were unspecified, will take effect on January 1, 1990. Says Thunberg, "...our renewal rate has not been as good as we anticipated.

"We hope that this is due to people temporarily dropping out of the hobby [because of] radio burnout...and not because they have become unhappy with SPEEDX."

In order to assist with the problem, the club has formed a "Friends of SPEEDX" program. According to Thunberg, donations of $10.00 will bring you a certificate of appreciation. Those who donate $25.00 will receive a SPEEDX pennant and will have their names published in the club bulletin.

For more information on how you can help this excellent ANARC member club, contact SPEEDX (Society to Preserve the Engrossing Enjoyment of DXing) at P.O. Box 196, DuBois, PA 15801.

Radio Reporters on Government Payroll

According to the New York Times, for the last four years, the Israeli Foreign Ministry and a Jerusalem radio studio have run a covert program in which radio reporters were hired by the studio but given government guidance on what they should report to radio stations around the world.

The article in the Times says that money from the Ministry was secretly passed through the radio studio so that checks were written on the studio's bank account.

The Israeli embassies and consulates then helped the reporters recruit radio clients in major locations. The ministry's involvement in the program was kept secret, said a program administrator, because "what radio station is going to take a reporter who is on the payroll of the [Israeli] Foreign Ministry?"

Exposure to Electromagnetic Radiation Nets Worker $500,000

A Boeing Company electronics technician has been awarded $500,000 for being exposed to electromagnetic pulse radiation on the job. Robert Strom, who has worked for Boeing for 29 years, sued the company in 1989, claiming that he contracted leukemia while conducting specialized radiation
tests known as Electromagnetic Pulse radiation or EMP. Last year he was told by doctors that he had only three months to live.

Strom said that he was not informed of the dangers associated with his job and that he and 700 of his fellow employees were used as human research subjects.

Although Boeing admitted no wrongdoing in the case, it has reportedly changed its procedures to protect workers from excessive MP exposure and to warn them of the dangers.

Meanwhile, Strom has said that he will use a major part of his settlement to establish a foundation to warn the public about the dangers of exposure to electromagnetic radiation, including overhead wires, powerlines, substations, transformers, video display terminals, and household items such as electric blankets. (Bob Grove's promised article on the topic -- delayed due to this month's Middle East coverage -- will be coming up soon in MT.)

**East Berlin Opens Hitler's Bunker**

Workers in East Berlin opened part of Adolf Hitler's underground concrete bunker last month providing a tour for journalists and revealing a half-dozen eerie rooms that may eventually become an exhibition.

Journalists saw doors marked "toilet," and "shower" as well as a rusting steel door leading to the **reichsrundfunk** or radio station.

Hitler and his aides reportedly used the station to broadcast propaganda messages to the German people during World War II. A blown-up safe and what appeared to be a water tank were the only objects left in the room, which had pools of water on the floor.

Although part of the bunker was blown up by the Soviets at the end of the war, officials in Germany fear that opening up the remaining rooms to permanent exhibition may provide an unwanted mecca for neo-nazis and other extremists.

**Gotta Have a Phone**

The NYNEX Corporation has announced that it plans to spend at least $100 million on a second cellular phone network in Manhattan by Christmas of next year.

The new network is intended for use by pedestrians using small, portable handsets, while owners of car telephones and currently available portable phones would continue to use the existing system. By using radio frequencies that it controls for existing cellular phones, NYNEX expects to get its system up and going before competing systems; the others are expected to operate on very high radio frequencies which are currently occupied but are being sought by these companies.

The handsets for the NYNEX system will reportedly retail for $500 and the service will cost from 30 to 40 cents a minute.

**Window Banners Call Police**

A lot of people would like to help stranded motorists but are often afraid to stop and render assistance because of the possibility of themselves becoming a victim of crime.

A Los Angeles company is betting that a decidedly low-tech device may bridge the gap between stranded motorists and the owners of car phones. Called "Call Police" banners, they are hung by distressed motorists in their car windows where motorists who have car phones can see them. Hopefully, the car phone-owner will then notify police.

You can get your banner from WCIL for $4.00 from P.O. Box 66955, Los Angeles, California 90066.

Our continued thanks to everyone who submits information for this column: Dave Alpert, New York, New York; Ruth Hesch, White Plains, New York; Hugh Miller, Woodinville, Washington; Gary Westfall, Beaverton, Oregon.

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**MONITORING TIMES**

October 1990
Who's right and who's wrong? What's really going on? Who did what and why?

THE WAR of the WORDS

Follow the wave of opinion and propaganda as it unfolds on the Middle East shortwave broadcast stations.

by Gayle Van Horn

As I walked down the quiet street, a hot, dry breeze blows against my face. The fabric of my abha flaps in the wind and the popping noise it makes breaks my reverie.

Looking to the west through the twin minarets of the mosque, I see a giant red sun centered, setting on a dusty horizon. The scene reminds me of a cheap post card I once saw in the airport souvenir shop in Dubai and I smile to myself.

As the sun is swallowed up by the desert sands, I hear his cries and look to the top of the minarets for the source of the melancholy voice that call the Arab world to salat, or evening prayer. Before long, the street swells with the devout. Some of the more dedicated among us make this pilgrimage five times a day.

This evening tension fills the air along with the brassy smell of bodies. Word has reached the city of over 100,000 Arab troops amassing on the border. Their intent is less than honorable.

I wash my face, hands, feet and quietly enter the mosque. Men in the front stand in rows right behind the prayer leader who faces Mecca. The other women and I stand behind the men in rows also. I start to bow from the hips and kneel with my face on the ground.

An Iman, or leader, approaches the mihrab. It contains the pulpit and lectern for the Koran. Slowly, methodically, he speaks these words from the Koran in Arabic: "The enemy of my enemy is my friend."

Today's date is August 2nd, 1990, and the place is Kuwait City.

Suddenly the clock radio turns on. I wake up in a cold sweat. The radio is tuned to the local all-news channel. The newscaster on the radio says that Iraq has invaded Kuwait overnight.

My Arabian dream has suddenly become a reality.

The Day of the Overthrow

On August 2nd, elements of the Iraqi army streamed across the borders of Kuwait and overthrew the legitimate government. The event has truly shocked and startled the whole world.

Shortwave broadcast listeners have used their radios to stay in the forefront of the situation. Radio has played a major role in the crisis. This has been evidenced by the last day of broadcasting at Radio Kuwait.

At the onset of the invasion, a statement from the Kuwaiti Defense Ministry was made, as well as international appeals for assistance. Radio Kuwait pleaded to their listening audience.

"Dear listeners everywhere. Do not be fooled by extraneous radio stations. Their news and bulletins are totally false. They are broadcasting venom through their propaganda which should not be believed. Do not pay attention to what these radio stations are broadcasting. This is our radio station. It is the sole and official radio station that is broadcasting its programs from Kuwait and in the name of Kuwait. This is Kuwait."

Music and appeals for help on shortwave frequencies continued, like the above, until the third of August at 1111 UTC. That was the last time Radio Kuwait was heard on shortwave.

A New Radio Kuwait

But the Kuwaiti government is not completely silent, even from exile. Ahmed Fahad Sabah, a member of the Kuwaiti royal family, has announced the formation of Radio Free Kuwait, a new radio station that
Kuwait will broadcast patriotic music, news and interview programs that will focus on the resistance to the Iraq occupation in Kuwait. "We have brought the whole world with us in our struggle against Iraq," said Sabah. "We must continue to take our problem to the people of the world until this man [Saddam Hussein] is removed from our midst."

Radio Kuwait is expected to broadcast about two hours a day in Arabic and English and will apparently use a few of Radio Kuwait's old announcers who escaped the country. The announced frequencies to watch include:

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Radio Kuwait itself will probably not return to the air anytime soon, even if the conflict is resolved. One radio listener, equipped with a satellite dish, has been watching Iraqi TV news broadcasts. During one newscast, videotape showed Iraqi radio personnel "stripping Radio Kuwait clean." Evidently nothing was left and all the equipment was shipped to Baghdad. Basically there is nothing left of Radio Kuwait.

A Troubled History

The country that committed the aggression and invaded Kuwait with a lightning accuracy was Iraq. It claims to have invaded and annexed Kuwait based on long historic ties to the country.

Some of the world's earliest civilizations began in what is now Iraq. The ancient Greeks called this region Mesopotamia, meaning "between the rivers." The two rivers are the Tigris and Euphrates. Both rivers flow through present day Iraq. The deep feelings of ownership and nationalism by the Arabs of this land extend to this period, between 3500 and 3100 B.C.

The basis for most of the Iraqi claims on Kuwait and the Arabian peninsula involve the religion Islam. The followers of the prophet Muhammad, called Muslims, swept out of the Arabian peninsula and conquered what is now Egypt, Iran, Iraq, Israel, Jordan, Lebanon and Syria. Many of the conquered people adopted the Arabic language and Muslim religion.

For many years wars were fought on this land by both Arabs and outside forces. In 1923 most Arab lands were divided into mandated territories by the League of Nations and placed under British and French rule. The Arabs demanded their independence but...

...the British were the ones who drew the lines in the sand.

Many territories gained independence in the 1930s and 1940s. Britain withdrew from many sheikdoms in the 1960s, and by late 1971, it had withdrawn completely from the Arabian Peninsula.

Before the lines in the sands were drawn, Kuwait was a part of Iraq. These claims had been repeated on Radio Baghdad many times in the weeks preceding the invasion. No doubt, the powerful war of the words will continue.

Iraq Argues its Case

Those of you who would like to monitor Radio Baghdad's English service may do so from 2000-2200 UTC on 13660 kHz. While this broadcast is intended for Europe, it is quite audible in the United States.

Programming to North and Central America is scheduled from 0300-0330 UTC on 11830 kHz. Recent monitoring of this channel here in the United States indicates that the announced 11830 frequency is off the air. Baghdad can be found during the same time slot on a new frequency of 11755 kHz in English.

Pop and Arabic music continue to fill their daily broadcasts, as well as frequent political tirades. During a recent such declaration, Baghdad included a question to the United States and Great Britain...
asking, "Why do you want to starve the Iraqi people?" This was a reference to the multinational naval blockade of Iraq.

Iraq has also begun their version of Tokyo Rose, Hanoi Hannah and Argentine Annie. As in past wars and conflicts, propaganda messages have cropped up on the airways for the troops. This conflict is no exception.

Since the onset of the crisis, a male voice has been heard with a litany of Iraqi propaganda. I first noticed him on a US TV media newscast report, blasting a diatribe to the US troops stationed in Saudi Arabia. His abusive speech directed to US forces, referred to their families back home, dying in the desert, and ultimately being defeated by the Iraqi Army.

You can catch some of his propaganda on 11860 during the following time periods: 1000-1200, 1600-1800 and 2000-2200. It is unknown at this time if the 2000-2200 broadcast on 11860 is parallel to 13660.

Recently I noticed that the person heard on 11860 is the same announcer that is heard on Radio Baghdad's English service. This maladjusted announcer has been sarcastically named The Thief of Baghdad in the Van Horn radio room.

Like Kuwait, Baghdad has also put up its own clandestine broadcast. A new station calling itself Holy Mecca Radio has appeared in Arabic on 9730 kHz. The station has been heard broadcasting at various times between 0400 and 2100. This station supports Iraq and appeals to Arabs to rescue Mecca from foreign occupation.

Baghdad has also reintroduced its Voice of Egypt of Arabism program, which is critical of Egypt. The broadcast can be heard around 1830-2200 on 12025, 15150, 15170 and 17720.

The View from Saudi Arabia

As mentioned earlier, followers of Mohammed invaded what is now Iraq from the Arabian peninsula. By the nineteen hundreds and a host of territorial disputes later, the area was proclaimed the union of the Kingdom of Saudi Arabia.

During World War II Saudi Arabia's sympathies were with the allies. Since then, there have been mutual ties of friendship between the United States and Saudi Arabia.

Table 2

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<th>Qatar Broadcasting Service Schedule:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0245-0800 UTC on 11820</td>
</tr>
<tr>
<td>0900-1800 UTC on 17770</td>
</tr>
<tr>
<td>1800-2130 UTC on 15265</td>
</tr>
</tbody>
</table>

Today we face the risk of war to retain stability in Saudi Arabia and guarantee the flow of oil. The worst fear of the United States is that the tables will now turn and Iraq will invade Saudi Arabia.

If you would like to follow the daily current developments in Saudi Arabia, try the Broadcasting Service of the Kingdom of Saudi Arabia (B.S.K.S.A.).

English broadcasts are scheduled for 1600-2100 UTC on 9705 (to Western Europe) and 9720 kHz (to Eastern Europe). Listeners in the United States should try the 9705 frequency, and as the days get shorter reception should improve.

Recitation of the Koran have also been noted from 0800-0955 UTC on 21505 and 21665 kHz. Listeners in Europe and the Middle East, especially the Arabian Peninsula, can also hear Saudi Arabia's mediumwave power houses. Between 0300-1500 UTC, general Arabic programs from Riyadh are broadcast. In addition, between 1500-1700 the program "Call of Islam" from Jeddah is also aired. Frequencies to check (power in kW in parenthesis) include: 549 (2000), 585 (1200), 594 (2000), 648 (2000), 900 (1000), 1440 (1600), 1512 (1000) and 1521 (2000).

Of Sheikdoms and Emirates

Saudi Arabia is not the only country on the Arabian Peninsula. As a result of the League of Nations 1923 action, several smaller emirates and sheikdoms were created.

The United Arab Emirates are made up of seven independent Arab states, lying along the eastern coast of the Arabian Peninsula, at the south end of the Persian Gulf. An emir (ruler) governs each of the states, called emirates.

Originally, the states were known as the Trucial States, and were under British protection until 1971, when they gained their independence.

Until the discovery of vast oil deposits, the UAE region remained underdeveloped. Today, the economy of the United Arab Emirates depends largely on the production and export of petroleum.

The UAE has begun to play an important role during the turmoil in the Middle East. US military planes and ground crews have been based at bases provided by the emirates.

Consequently, listeners may find additional news headlines on Persian Gulf developments from the English service of UAE Radio in Dubai. The current schedule is listed in Table 1.

A relatively quiet area during this crisis has been the Sultanate of Oman and the Emirate nations of Qatar and Bahrain.

During the mid-19th century, when Oman declined as an port of entry for arms and slaves, much of its former prosperity was lost — until the oil discoveries within the interior in 1964.

Although these important nations do not have the immense oil resources as some of their neighbors, they do possess substantial quantities, and could likely become potential targets of Iraqi aggression.
Table 3
Radio Jordan
0400-2100 UTC on 855 mediumwave
1100-1315 UTC on 13655
1320-1630 UTC on 9560

Unfortunately, only a command of the Arabic language will bring you news from the gulf sheikdoms of Oman and Qatar. The current schedules are listed in Table 2.

The last of the gulf emirates is the state of Bahrain. This island sheikdom is in the middle of the Persian Gulf, and their economy depends largely on the oil industry.

Despite it containing by comparison a small oil supply, it does have a leading oil refinery that ranks as one of the largest and most modern in the world. This refinery at Sitrah processes all of the country's crude oil as well as much of the oil that comes from Saudi Arabia by pipeline.

Bahrain also contains major port facilities, and has become the home port for the many war flotillas enforcing the UN blockade. For now, the only way to hear news from Bahrain is through the government-owned mediumwave station in English from 0300-2100 on 1584 kHz and Arabic from 0300-2100 on 612 and 801 kHz.

Straddling the Fence ... er, River

Another neutral country in the conflict is Jordan to the west of Saudi Arabia and Iraq. The River Jordan divides it into two parts – the East Bank and the West Bank. During the 1967 Six-Day War with Israel, Jordan lost much of its needed agricultural land on the West Bank to Israel.

After the brief war, many Palestinian refugees in Jordan formed guerrilla groups to fight Israel and regain their homeland. Because of this, bitter Palestinians have weakened Jordan and the throne of King Hussein.

Unlike its Arab neighbors, Jordan has no oil, and in the past has had to rely on Iraq for that vital commodity. Iraq has also relied on Jordan as a major trading partner of goods and food. This relationship is now jeopardized with the UN sanctions imposed on Iraq.

To compound things, Jordan is faced with an overwhelming flood of refugees fleeing Kuwait and Iraq. What will this crisis in the

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MONITORING TIMES  October 1990  9
gulf mean to Jordan's future? No one knows for sure.

With the constant shifting sands of Arab politics, why not check in with Radio Jordan's English service in Table 3 to find out what the future holds for Jordan.

**Israel Stands Poised**

For years the major attention of the Arab nations has been devoted to Israel. The Jewish state is the proclaimed enemy of most of these nations.

Up until their independence, Israel was known as Palestine, and under British control. On Nov. 29, 1947, the United Nations voted to end their hold and divide the country into Jewish and Arab states.

The Jewish people agreed to the plan, but the Arabs wanted all of Palestine to be an Arab state. Nearby, Arab countries were preparing to crush the Jewish nation.

The state of Israel was proclaimed on May 14, 1948, under the leadership of David Ben-Gurion. The following day Israel was attacked by the Arab nations of Egypt, Iraq, Lebanon, Syria and Jordan.

After having fought five wars in four decades, is Israel braced for another possible fight? KOL Israel on shortwave may give you that insight. Table 4 gives KOL Israel's latest frequencies through the end of November.

**Significant Others**

Like Israel, the Arab Republic of Egypt has fought many desert battles through the decades (most of them with Israel).

During the Six-Day War with Israel, Egypt, Jordan and Syria's military forces were almost completely destroyed. Israel also conquered and occupied a considerable amount of Egyptian territory. After several years of negotiating, Egypt and Israel signed a peace treaty, "The Camp David Accords," with United States government help.

During this latest crisis, Egypt is fighting on the US side against Iraq. President Mubarek has sent troops to the gulf as part of a multi-national effort to avert war. Radio Cairo has and will continue to play a vital role in the war of the airways. English programming may be heard nightly from 0200-0330 UTC on 9475 and 9675 kHz.

Another country that has sent troops to the Arabian peninsula is Syria. During the Iraq-Iran eight year war, Syria supported Iraq. Syria's President Assad has also battled for years with Iraq's President Hussein for the support of all Arabs in forming one Arab state, a dream of many Arab people. To see how far the dream has come, check out Radio Damascus broadcasting in English from 0500-0515 UTC on 12075 kHz.

Iran during this crisis has been remarkably neutral. This Persian state has already received concessions from Iraq that eight years of war couldn't achieve. Prisoner exchanges and land have been returned to Iran shortly after the conflict started. Economically, Iran has stepped in to fill the oil gap vacated by Iraq and Kuwait.

As in past crises, Radio Tehran has been an interesting station to monitor. Their English broadcast begins at 1130-1225 on 9575 kHz. Additional English is from 1930-2030 on 9022 and 6035 kHz.

As you can see, shortwave radio can be used to follow the current situation in the Persian Gulf and the surrounding region. Conflict is nothing new to this area of the world and the future remains uncertain.

The future for Kuwait is also uncertain. Listeners who monitored one of Radio Kuwait's last broadcasts heard a proud and determined nation in the face of adversity speak to the world these final words:

"This is Kuwait. We draw attention to the viewers and listeners of Kuwait TV and Radio that the broadcast will continue on the currently operational wavelengths for the radio … We hope to return and meet again, God willing, tomorrow Friday morning, on the road to victory. Kuwait radio will continue its broadcast around the clock. We are with you with our souls as a sacrifice for Kuwait."

Only time will tell if Kuwait's dream will come true.

The author would like to credit and thank the following sources of information in the preparation of this feature: BBC Monitoring Service, The International FIDO Network, Echo, Media Network and Jonathan Marks, Monitoring Times Managing Editor Larry Miller and M7's Utility World Editor Larry Van Horn.

<table>
<thead>
<tr>
<th>Time</th>
<th>Frequency (kHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0500-0515 UTC</td>
<td>N.America/W.Europe 15640 11605 9435</td>
</tr>
<tr>
<td></td>
<td>Australia 17575</td>
</tr>
<tr>
<td></td>
<td>E.Europe/N.America 11655</td>
</tr>
<tr>
<td></td>
<td>W.Europe 21790 17575 11585</td>
</tr>
<tr>
<td></td>
<td>Australia 15650</td>
</tr>
<tr>
<td></td>
<td>E.Europe 17590</td>
</tr>
<tr>
<td>1100-1130 UTC</td>
<td>W.Europe 11585</td>
</tr>
<tr>
<td></td>
<td>E.Europe 11655</td>
</tr>
<tr>
<td>1800-1815 UTC</td>
<td>N.America/W.Europe 12077 11605 9435</td>
</tr>
<tr>
<td></td>
<td>Latin America 17575</td>
</tr>
<tr>
<td>2000-2030 UTC</td>
<td>N.America 12077 11605 9435</td>
</tr>
<tr>
<td></td>
<td>W.Coast USA 11655</td>
</tr>
<tr>
<td>0000-0030 UTC</td>
<td>N.America 12077 11605 9435</td>
</tr>
<tr>
<td>0100-0155 UTC</td>
<td>N.America 12077 11605 9435</td>
</tr>
<tr>
<td>0200-0225 UTC</td>
<td>N.America 12077 11605 9435</td>
</tr>
</tbody>
</table>
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"I've been monitoring the utility bands for the last 25 years," says Monitoring Times utility editor Larry Van Horn, "and I can't ever remember hearing so much activity on shortwave."

Because of its enormous scope, the current crisis in the Middle East is giving shortwave listeners a once-in-a-lifetime opportunity to monitor military action on what some say is the largest scale since World War II.

The Gamble in the Gulf:

Monitoring World Military Reaction to the Iraqi Invasion of Kuwait

by Larry Van Horn

The winds blow hot and heat up the land which is sand. It is a desolate place where daytime temperatures soar to 120 degrees Fahrenheit. To find relief, people crowd along the coastlines, in river valleys and in the shadow of the mountains. Here there is water, enough to grudgingly support human life and crops.

As if the torture of the sun were not enough, the temper of the people is volatile, too. Throughout its long history, the Middle East has been torn by many conflicts. It has been a repeated thorn in the side of the world and once again, the heat is on.

On this occasion, one-time Soviet ally, Iraq, has invaded its Arab neighbor, Kuwait. The nations of the world have responded with outrage and with one of the biggest buildups of military force since World War II. The crisis continues to simmer at the near-boiling point.

Not surprisingly, the biggest response to the situation has come from the United States. President George Bush asked for and received permission to place large ground and air force elements in the deserts of Saudi Arabia. In addition, the U.S. has sent in a major naval armada to effectively surround the nation of Iraq. Other countries, from Holland to Australia, and even some Arab nations, have entered the fray to one degree or another. The result is an unparalleled opportunity for radio monitors.

A couple of days before the invasion back in August, word had leaked out that Iraq was amassing troops on the border with Kuwait but that it did not plan to invade. This was a flag for me and I immediately went to the radios to check out what was going on. Already, U.S. Air Force and Strategic Air Command (SAC) channels were active with the communications of long range advance units. B-52 bombers and KC-10 tankers were heard moving toward Saudi Arabia and Diego Garcia and several Military Airlift Command (MAC) aircraft, possibly carrying members of the elite Delta Force, had already been dispatched.

United States diplomatic activity could be followed by monitoring Mystic Star channels. (Activity on Mystic Star channels should be watched closely for further moves by U.S. VIPs.) A check of recent Utility World logging sections will give you a good start on hearing the active Mystic Star frequencies.

One of the best places to start monitoring any military "flare up" in the world is the United States Air Force Global Command and Control (GCCS) frequencies. If the U.S. is doing anything in the world militarily, this is the best place to get some idea of the magnitude of the operation. In the case of Desert Shield, units and aircraft from both U.S. coasts were involved. Particular attention should be paid to MAC activity. Table 1 includes the absolutely latest I have on the USAF GCCS network.

<table>
<thead>
<tr>
<th>USAF Global Command and Control System</th>
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<tbody>
<tr>
<td><strong>Albrook AB, Panama</strong></td>
</tr>
<tr>
<td><strong>Andersen AB, Guam</strong></td>
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<tr>
<td><strong>Ascension Aux AF</strong></td>
</tr>
<tr>
<td><strong>Clark AB, Philippines</strong></td>
</tr>
<tr>
<td><strong>Croughton AB, England</strong></td>
</tr>
<tr>
<td><strong>Elmendorf AFB, Alaska</strong></td>
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<tr>
<td><strong>Hickam AFB, Hawaii</strong></td>
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<tr>
<td><strong>Incirlik AB, Turkey</strong></td>
</tr>
<tr>
<td><strong>Lasjes Field, Azores</strong></td>
</tr>
<tr>
<td><strong>Loring AFB, Maine</strong></td>
</tr>
<tr>
<td><strong>MaceDill AFB, Florida</strong></td>
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<tr>
<td><strong>McClellan AFB, Calif.</strong></td>
</tr>
<tr>
<td><strong>Thule AB, Greenland</strong></td>
</tr>
<tr>
<td><strong>Yokota AB, Japan</strong></td>
</tr>
</tbody>
</table>

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12 October 1990  MONITORING TIMES
TABLE 2
Middle East Air Traffic Control Monitoring

Europe A:
Beirut (B)-Malta (M)-Tunis (T)
2910(B) 3411(T) 4689(B/T) 5519(T) 5661(M) 8826(T) 8875(B) 10084(M)

Middle East (MID-1):
Aden-Amman-Baghdad-Bahrain-Beirut-Damasus-Jeddah-Kuwait-
2992 3404 5603 5658 5667 6624 8879 8918 10009
Muscat-
Bahrain-Bomb
Nairobe- Riyan- Sanaa
Addis
Note: Not all stations will appear on all frequencies.

Middle East (MID-2):
Bahrain-Bombay-Delhi-Kabul-Kathmandu-Karachi-Kuwait-Lahore-
Musc-Tehran
2923 2992 3446 3467 5601 5658 5667 6556 6624 8879 8918 10009
ACC: Tirit

ACC:
Kuwait ACC:
Basrah, Baghdad, Damascus, Syria ATCC:

ACC:
Beirut, Lebanon ACC:
Damascus, Syria ATCC:

ACC/UCCC, UAE: 129.5 124.85 APP-124.4 127.5 125.9
290.8 294.0-N scr/124.4 128.1-S snr
Bahrain ACC:
126.7
Beirut, Lebanon ACC: 119.3 120.3 120.4 123.7
Damascus, Syria ATCC: 120.0

Emirates ACC/UCCC, UAE: 129.5 124.85 APP-124.4 127.5 125.9
128.1 290.8 231.4 270.0 Koper Cnt1-127.5
Jeddah ACC/FC:
N scr-Tabuk RCAG 132.9 340.5/Arar RCAG
133.3 345.6
Hafr Al Batin RCAG 127.3 345.6/Hall RCAG
128.1 5667 8918
C sct-Wejir RCAG 133.9 Yanba RCAG 132.3
Gassim 134.3 5667 2992
S scr-Al Hada RCAG 134.5 132.1 325.0 Afif
RCAG 126.5
Khamis Mushait RCAG 132.1 344.5 6667 2992 5658 11300
Muscat, Oman ACC: 123.95 124.55 128.15

TABLE 3
Selected VHF/UHF Middle East Aircraft

Ankara, Turkey ACC: E sctr-127.3 129.3 129.45, 131.05 132.9
240.8 253.3 259.75 337.3 362.05
W sctr-128.8 133.55 285.15
S sctr -128.1 128.75 234.6 345.95
Tell Aviv Intl-124.3 124.4
S sctr-120.9 212.4
Amman, Jordan ACC: W scr-128.3 E sctr-128.5
Cairo, Egypt ACC/FIR: 130.9 127.7 126.6 129.4
Baghdad, Iraq ACC: 127.1 125.9
Basrah, Iraq ACC: 124.525
Kuwait ACC: 125.1 123.2 135.5
Riyadh Mil, Saudi Arabia: App 126.0 178.0 Twr 124.3 341.6
ELF 1 etc ESSO Ops on 288.4
Abu Dhabi Intl, UAE: App 124.85 125.1 125.9 127.5 129.5 231.4 270.0
290.8 294.0-N sctr/124.4 128.1-S sctr
Bahrain ACC: 126.7

This directory is your guide to the World of the Air. A must for all airplane buffs. A must for every military aviation enthusiast. A must for every scanner enthusiast.

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Table 4
Civilian Marine Radio Stations of the Middle East

<table>
<thead>
<tr>
<th>Station</th>
<th>Frequency Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>4XO-Haifa R, Israel</td>
<td>2649 3656 4238 4366.7 4385.3 4410.1 4425.6 6430 6470.5 6512.5</td>
</tr>
<tr>
<td></td>
<td>6516.7 6485 6894 8718.9 8731.3 8753 8799.5 12860 13051.5</td>
</tr>
<tr>
<td></td>
<td>13110.1 13119.4 13138 13144.2 17060 17146.4 17257.7 17270.1</td>
</tr>
<tr>
<td></td>
<td>17282.5 17316.6 22491 22605.3 22641.6 22645.6</td>
</tr>
<tr>
<td>JYO-Aqaba Radio, Jordan</td>
<td>2512.5 2612.5 4326.5 4416.3 4431.8 6390 6479 8528 8728.2 12725 13159.7</td>
</tr>
<tr>
<td>SUP-Port Said, Egypt</td>
<td>4325 6425 8473 13060</td>
</tr>
<tr>
<td>SUH-Alexandria Radio, Egypt</td>
<td>3/8578 4/12970.5 16912</td>
</tr>
<tr>
<td>YIR-Basrah Radio, Iraq</td>
<td>4220 6330 8440 12660 16880 16935</td>
</tr>
<tr>
<td>9KK-Safat Radio, Kuwait</td>
<td>2/4299 3/4413.2 4/6381.5 6/5809.5 6/8525 7/8737.5 8/12895</td>
</tr>
<tr>
<td></td>
<td>9/13172.1 10/12925 21/17288.7 22/16995 23/22504 24/22605.3</td>
</tr>
<tr>
<td></td>
<td>25/22642.5 32/4431.8 52/6518.8 72/8743.7 92/13181.4</td>
</tr>
<tr>
<td></td>
<td>22/17298</td>
</tr>
<tr>
<td>HZG-Dammam Radio, Saudi Arabia</td>
<td>4253.5 4278 4309 6364.5 6387 6466 8484.5 8556.5 8651 12658.2 12795.2 12792 16860.8 16953 17062 22338.2 22427 22484</td>
</tr>
<tr>
<td>HZY-ARAMCO Ras Tanura Radio, Saudi Arabia</td>
<td>12811.3 13060</td>
</tr>
<tr>
<td>A7D-Qatar Radio</td>
<td>4231 4316 4355 4854 8473 8630 12966 13024 16880 16935</td>
</tr>
<tr>
<td>A4M-Muscat Radio, Oman</td>
<td>4233 8445 12675.5 16868</td>
</tr>
<tr>
<td>A9M-Hamala Radio, Bahrain</td>
<td>4284 4302 8448 8454 12698 12709 17169 17175.2 17208 23312 22322</td>
</tr>
</tbody>
</table>

Table 5
Middle East RTTY Press Services

<table>
<thead>
<tr>
<th>Agency</th>
<th>Frequency Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>SANA: Syrian Arab News Agency - Damascus, Syria</td>
<td>YKP 28/11080 33/15020</td>
</tr>
<tr>
<td>MINA: Middle East News Agency - Cairo, Egypt</td>
<td>SUA 50/13653 94/5220 211/5275 231/7610 246/10150 251/10610 289/15845 291/15935</td>
</tr>
<tr>
<td>INA: Iraqi News Agency - Baghdad, Iraq</td>
<td>YI L68/5867 L71/10162.5 L73/14373 O72/13524 X70/14699 X75/1765 Z74/9867</td>
</tr>
<tr>
<td>PETRA: Jordan News Agency - Amman, Jordan</td>
<td>JYF 4/9463 6/5055</td>
</tr>
<tr>
<td>KUNA: Kuwait News Agency</td>
<td>I have not heard any transmissions from this news agency since the invasion. You might still want to check some of the agency's frequencies. The transmitters are in the control of Iraq and the INA might use them.</td>
</tr>
</tbody>
</table>

I mentioned earlier that SAC aircraft were involved in the operation. Listeners should keep a close watch on the primary SAC air-to-ground channels for increased activity and Emergency Action Messages (EAM). These channels and their "Sierra" designators are as follows: 4725 (S-390), 6761 (S-391), 9027 (S-392, S-393), 13241 (S-394) and 17975 (S-395).

Because of the fact that the U.S. Air Force has conducted military exercises with the Saudi Air Force for years, we already know some things about Saudi military bases. The air field at Dhahran, for example, uses the call sign Hotel 1 and is the NCS (Net Control Station) of the system. Hotel 1 uses the frequencies 9130 and 11100. It is believed that most of the MAC flight operations went into this base and they do use shortwave frequencies 9130 and 11176 for those ops.

There is a military air field at Riyadh which uses Hotel 2 as a call sign and the frequencies 7300 and 12112. The air base at King Khalid uses the call sign Hotel 8 and the same frequencies as Hotel 3/4. These frequencies have been active during this crisis. The Saudi Air Force in the Middle East is one of the most sophisticated in the Arab world. The frequencies to watch include: 3095 (1900/0400) / 5526 (1900-0400) / 8967 (0400-1900) / 8990 (0400-1900).

Another way to monitor aircraft activity in the Middle East is through shortwave Air Traffic Control (ATC) Major World Air Route Areas (MWRA) transmissions. Four areas need to be watched to catch all of the activity in and around the Middle East. Table 2 is the Monitoring Times Guide to Middle East Air Traffic monitoring.

Not all activity occurs on shortwave. Listeners in the area of the conflict might do well to check out the frequencies listed in Table 3 for all sorts of military/civilian activity.

As can be seen from James Pogue's accompanying article, the sea is playing a major role in the Persian Gulf conflict. The U.S. Navy is conducting what President Bush is calling a "naval interdiction." Others call it a blockade, but whatever words you choose to use, the primary U.S. Navy frequencies to monitor will be HICOM (High Command) channels. Three frequencies bear watching for flash traffic to and from naval units. These are: 7535 12215 23315 all in USB.
One area of the shortwave marine spectrum to check for activity will be on the worldwide coastal/ship simplex channels. During the last Persian Gulf crisis (Iran-Iraq war), I heard Iranian naval bores challenging shipping traffic in the gulf.

You just never know what you are going to hear on these frequencies, so keep an ear cocked toward these channels for possible action by naval ships challenging civilian vessels. These channels include (asterisk indicates most active channels): 4125* 4136.3 4139.4 4139.5 4143.6* 4419.4* 6210.4 6213.5 6218.6* 6518.8* 8281.2 8284.4 8291.1* 8294.2* 6218.6* 6518.8* 6521.9* 8281.2 8284.4 8291.1* 8294.2

Use the TV news as a guide to what's happening in the region. Then use a book like Grove's Shortwave Directory to ferret out new frequencies. I have also found that general tuning through the utility bands works the best to find new activity and tactical channels used for a specific mission or agency.

Just where should you look for utility station activity? Table 6 will put you in the ballpark.

Now is the time to fire up the shortwave radio and monitor one of the world's hot spots. As the crisis drags on, I am sure quite a few new channels will pop up in the shortwave spectrum associated with the conflict. So why don't you grab your log book, some scratch paper and your headphones and give the utility bands a listen, cause over in the Middle East ... the heat is on.

Traffic about a naval activity is not limited strictly to military channels. Civilian marine stations should provide some very interesting listening as ships attempt to stay out of harm's way. Table 4 lists the primary marine radio station heard in the region and most transmit their messages in Morse code.

Table 6

<table>
<thead>
<tr>
<th>General Utility Bands</th>
<th>Concentrated Military Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-3500</td>
<td>15600-18068</td>
</tr>
<tr>
<td>4000-4850</td>
<td>20168-21000</td>
</tr>
<tr>
<td>5060-5950</td>
<td>21850-24890</td>
</tr>
<tr>
<td>6200-7000</td>
<td>25010-25670</td>
</tr>
<tr>
<td>7300-9500</td>
<td>26100-28000</td>
</tr>
<tr>
<td>9995-11650</td>
<td>3025-3155</td>
</tr>
<tr>
<td>12050-13600</td>
<td>4700-4750</td>
</tr>
<tr>
<td>13800-14000</td>
<td>5460-5680</td>
</tr>
<tr>
<td>14350-15100</td>
<td>5680-5730</td>
</tr>
<tr>
<td></td>
<td>6685-6765</td>
</tr>
<tr>
<td></td>
<td>8965-9040</td>
</tr>
<tr>
<td></td>
<td>11175-11275</td>
</tr>
<tr>
<td></td>
<td>13200-13260</td>
</tr>
<tr>
<td></td>
<td>15010-151970-18030</td>
</tr>
<tr>
<td></td>
<td>23200-23350</td>
</tr>
</tbody>
</table>

from the Persian Gulf area. This is an excellent way to keep track of each government's view of the situation using hard copy. While this is not a complete list of frequencies, I have compiled the latest list as heard by Utility World reporters. Check out Table 5.

On the diplomatic front, the U.N. does have troops in the Middle East and these frequencies could prove interesting to monitor. I have come across a previously unpublished list of frequencies for U.N. forces in the Sinai. United Nations Ismailiyah Operations in Al Ismailiyah, Egypt, can be heard on 6632, 9006, 11233, 13231, 13257-primary and 3975 4704 5690 6204 6810 6905-secondary.

Table 5

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>22133.3</td>
<td></td>
</tr>
<tr>
<td>22136.4</td>
<td></td>
</tr>
<tr>
<td>16590.2</td>
<td></td>
</tr>
<tr>
<td>16593.3</td>
<td></td>
</tr>
<tr>
<td>22094.5</td>
<td></td>
</tr>
<tr>
<td>22094.5</td>
<td></td>
</tr>
<tr>
<td>22101.5</td>
<td></td>
</tr>
<tr>
<td>22105.5</td>
<td></td>
</tr>
<tr>
<td>22108.5</td>
<td></td>
</tr>
<tr>
<td>22124.5</td>
<td></td>
</tr>
<tr>
<td>22127.1</td>
<td></td>
</tr>
<tr>
<td>22130.2</td>
<td></td>
</tr>
<tr>
<td>22133.3</td>
<td></td>
</tr>
<tr>
<td>22136.4</td>
<td></td>
</tr>
</tbody>
</table>

Finally, on the ground in Saudi Arabia is the Army Corps of Engineers. Check the following frequencies for simplex (9130 and 11425). The following are the last known call signs in use. This net also is part of the U.S. Air Force Saudi network mentioned earlier.

Castle 1 Riyadh Airport
Castle 2 Khamis Mushait Airport
Castle 3 Jeddah Airport
Castle 4 Tabuk Airport
Castle 6 Dhahran Airport
Castle 7 Jubail Airport
Castle 8 Al Batin Airport

RTTY-equipped monitors might want to check out some of the press services transmitting wire service copy on shortwave.
Global Navies Converge on the Persian Gulf
(And You Can Tune Them In!)

by James T. Pogue

Australia's HMS Darwin guided missile frigate

On August 6, the United Nations Security Council met in emergency session and voted unanimously to order a worldwide trade embargo of Iraq. The purpose of the embargo was to force Iraq to withdraw from occupied Kuwait and to prevent further aggression against now threatened Saudi Arabia and other nations. This was the first such total boycott by the United Nations in 23 years.

In order to enforce the boycott, several nations elected to send naval forces to the Persian Gulf and surrounding areas. The commanders of these forces stay in close touch with their headquarters, and therefore, an enormous upsurge of naval communications is taking place on short wave frequencies this fall.

One of the first countries to send naval forces to the Persian Gulf was Australia. Two American-built "Oliver Hazard Perry" class frigates, HMAS ADELAIDE and HMAS DARWIN, were dispatched shortly after the U.N. boycott was announced. These ships are 453 ft. long, and their gas turbine engines can carry them along at over 29 knots. They carry a 76 MM gun mount, launchers for STANDARD surface to air missiles and HARPOON anti-ship missiles. They also carry the PHALANX close-in weapons system (CIWS) for protection against incoming missiles and torpedoes. To support the frigates, the 516 ft. long French-designed replenishment oiler HMAS SUCCESS is with them.

Departing from their homeport of Halifax, Nova Scotia, two Canadian warships responded to the crisis. HMCS ATHABASKAN, a "Tribal" class destroyer and HMCS TERRA NOVA, a "Restigouche" class frigate steamed towards the Gulf. ATHABASKAN is 426 ft. long and TERRA NOVA is 371 ft. long. Both carry substantial weaponry including guns, missiles, torpedoes and antisubmarine (ASW) mortars. To keep the warships supplied with fuel and provisions, Ottawa has also sent the HMCS PROTECTEUR, a 564 ft. support ship as well. She can conduct standard underway replenishment (UNREP) as well as vertical replenishment (VERTREP) using her three Sea King helicopters.

Notwithstanding the U.S. effort, the most substantial response in type and size of ships has been sent from France. Leading the armada is the 869 ft. long angle-deck aircraft carrier FNS CLEMENCEAU. Capable of speeds in excess of 32 knots CLEMENCEAU is protected by numerous missile systems and guns. Her air wing consists of 16 Super Etendard strike fighters, three Etendard IVP recon/surveillance planes, 10 U.S. built Crusader air defense fighters, seven Alize ASW and strike aircraft and two Alouette general purpose helicopters. CLEMENCEAU carries a crew of 1338 men.

Leading the escort units for the carrier is the guided missile cruiser FNS COLBERT. Built in 1957, she carries Exocet missiles, ECAN surface to air (SAM) missiles, two 100 MM gun mounts, twelve 57 MM anti-aircraft guns and has a crew of 560.

Two 456 ft. long destroyers, FNS DUPILEX and FNS MONTCALM, have been dispatched as well. Gas turbine engines can carry them along at over 30 knots, and each carries Exocets, SAM's, a 100 MM gun mount, torpedoes, and has two helicopters embarked. Somewhat larger at 517 ft., destroyer FNS SUFFREN carries basically the same armament as DUPILEX and MONTCALM. FNS PROTET, a 337 ft. long "Commandant Riviere" class frigate rounds out the combatant list from France. Heavy on guns, she carries two 100 MM gun mounts and two 30 MM guns along with other weaponry.

Keeping the French ships and their sailors supplied is the job of FNS VAR. This 516 ft. long replenishment tanker carries food, fuel and other supplies to the fleet.

For the first time since the end of WW II, the West German government has elected to send naval units in response to a situation outside their immediate defensive zone. A small flotilla of mine warfare and support ships left the Naval Base at Wilhelmshaven, bound for the Persian Gulf. The 178 ft. long FGS UEBERHERRN and FGS LABOE are type 343 mine warfare boats. Capable of making up to 24.5 knots, they carry Stinger missile launchers and 40 MM guns for defense. Built primarily for mine laying, they can also be used for sweeping. The FGS MARBURG and FGS WETZLAR are "Lindau" class minehunters. Built around 1959, the 155 ft. long boats are of wooden construction laminated with plastic glue to make them...
and the Phalanx CIWS. The Lynx helicopter on board is equipped with Sea Skua missiles for attacks against surface targets. With YORK is the 372 ft. long "Leander" class frigate HMS JUPITER. She carries Exocet missiles, two Oerlikon gun mounts, torpedoes and one Lynx helicopter.

Steaming the Gulf of Oman, the type 22 or "Broadsword" class frigate HMS BATTLEAXE carries an arsenal of Exocets, Seawolf missiles, four 30 MM guns and two Lynx helos. With her is the RFA (Royal Fleet Auxiliary) ORANGELEAF. This 560 ft. former merchant vessel was converted by the Royal Navy for use as a support tanker in 1986. The RFA is similar to the U.S. Navy's Military Sealift Command in that most of the people manning the ships are civilian employees. Mrs. Thatcher’s government also sent HMS HERALD, a survey ship that has been employed as a mine countermeasures support vessel since 1988 and three mine countermeasures ships (mine sweepers and/or hunters). Another RFA vessel to relieve ORANGE-LEAF should be leaving Britain soon as well.

Still other governments have said that they will send ships into the Gulf: Belgium, Greece and Spain. Spain intends to send one frigate, two corvettes and one support ship. The details of Greece and Belgium's responses have not been announced as of press time but it can be assumed that they will send light to medium surface combatants, support vessels and/or mine warfare ships.

The government of Japan is wrestling with a decision regarding what naval action (if any) they will take. The post-WW II Japanese constitution prohibits the Japanese Maritime Self-Defense Force (JMSDF) from engaging in operations outside the immediate areas of their political and economic interests. It is quite possible that Japan will support this force with some of their mine warfare vessels to the Persian Gulf.

The Soviet government is said to have at least one "Udaloy" class destroyer and two supply ships in the Persian Gulf. The Soviets have been steadily building units of this impressive class of ship since 1980, and there are around 10 of them in service at this time. The general purpose 531 ft. long vessels boast SAM’s, anti-ship missiles, 100 MM guns, torpedoes, ASW mortars and two Helix-A helicopters. As you can imagine, more information on the Soviet efforts is not available.

Many of the countries and states located in the Gulf area also have their own naval forces. A brief summary of these forces is also worth looking at.

Bahrain can put two 206 ft. and four 147 ft. long Exocet equipped fast attack boats to sea. They also possess two 126 ft. long fast attack boats with 40 MM guns that can lay mines if necessary. The 49 ship Egyptian Navy is an interesting mix of vessels acquired from nations friendly with the changing alliances of that nation. Included are 12 Soviet built submarines, one British built destroyer, five frigates (two from Spain, two from China and one from Britain),
HMS Soberton, a minesweeper similar to those the Royal Navy is expected to send to the Persian Gulf

and many fast attack boats from the UK, China and the Soviet Union.

Iran, Iraq's nemesis for at least the last decade, has a navy of around 42 ships. They include three destroyers, three frigates and two corvettes. The protracted war with Iraq and poor relations with the West have considerably weakened their navy, as it suffers severely from lack of maintenance and few (if any) spare parts.

One of the key players in this volatile region "officially" has no navy. Jordan has what is termed the Jordan Sea Force, and their fleet of eight coastal patrol craft ranging in length from 30 to 100 feet carry only 30 MM guns. It is interesting to note that the base of operations for the Jordanian Sea Force is the critically important port of Aqaba. The navy of Qatar is small but can pack a pretty powerful punch. Three fast attack boats carry Exocet missiles and 76 MM gun mounts.

The central staging point for U.S. forces, Saudi Arabia has a navy of around 30 ships. Four French-built frigates, four U.S. built corvettes, four mine sweepers and two replenishment ships make up the bulk of the Kingdom's sea forces. There are a sizable number of U.S. troops involved in helping protect the Saudi's main naval base as well.

Syria's navy is of nearly all Soviet construction, and includes three "Romeo" class sub, two "Perya II" class frigates and at least 12 heavily armed "OSA" class fast attack boats.

With one of the largest navies in the area, Turkey possesses over 70 surface combatants. They include 12 destroyers, eight frigates, 30 mine warfare ships and a sizable submarine force.

Another country with a small but powerful naval presence is the United Arab Emirates. With at least eight fast attack boats equipped with Exocet and 76 MM guns, they are certainly a force to be respected.

On the other side of the coin is Iraq. Although Saddam Hussein has around 43 ships in his navy, he also has some serious problems. The bulk of his major surface combatants, four "Lupo" class frigates and six "Assad" class corvettes are still tied up at the Muggiano Shipyard in Italy where they were built. Since their completion several years ago, Iran has threatened to sink them at any cost should they try to make the transit to Iraq.

The vessels that Saddam actually has available include his flagship, frigate IBN MARJID, five Soviet-built "OSA" class fast attack craft, three Soviet "Polnochny" class medium landing ships and three tank landing ships. IBN MARJID carries four Exocet missiles and a 57 MM gun mount. The OSA's carry the infamous Soviet Styx missile.

It can also be assumed that Saddam also has at his disposal the four 147 ft. and two 190 ft. fast attack craft that made up the Navy of Kuwait. These 41+ knot boats carry Exocet missiles, have 76 MM gun mounts and some can lay mines as well.

As more and more ships converge on the Persian Gulf, the naval situation for Saddam doesn't look good. If the political situation continues to deteriorate, however, we may see attempts by Iraqi ships to run the blockade, clandestine mine laying, air attacks or perhaps even some action between surface combatants. Only time will tell.

The tables that follow include a listing of major surface ships from navies other than the United States that are known to have vessels in or enroute to the Persian Gulf. Also included is a listing of naval communication stations and frequencies for nations with vessels participating in the U.N. boycott. These frequencies may be used for voice, radioteletype or in some cases Morse code (CW).

Armed with this information you should be able to tune in some of the naval activity in this part of the world as the crisis continues to unfold.

Royal Australian Navy

Darwin -
VHI: 4316, 6393.5, 8512.8, 12750, 22348
(CW)
Darwin Control: 8122, 8161 (USB)

Canberra -
VIX: 4286, 6428.5, 8478, 12907.5, 16918.6,
17256.8, 22485

Belgian Navy

Oostende -
OSN: 6391.5, 12725

Canadian Forces - Maritime Command

Halifax -
CFH: 4255, 4271, 4363.6, 4561, 5097, 5684,
5330, 6430, 6509.5, 8697, 8746.8, 10536,
10945, 12726, 13187.6, 13510, 15920,
16926.5, 17251.5, 22599.1

Vancouver -
CKN: 4268, 4422.5, 6460, 6944, 8463,
8774.7, 12123, 12702, 12752.7, 13141.1,
17310.4, 22689

French Navy

Brest -
FUE: 4334, 6490, 8590, 12741

Djibouti -
FUV: 8992.5, 13042.5, 13442.5, 16905,
20855, 22447

RFOQ: 5832.5, 8107.6, 9078, 10813.6,
13442, 13654.6, 16124.6, 19384.6, 20855

La Regine -
FUG: 4313, 5942, 6352, 7619, 8666, 12875,
16876, 20270

Paris -
FUB: 4325, 4400.8, 4413.2, 5712, 8749.9,
8802.6, 13110.1, 13165.9, 17245.3, 17282.5,
22639.4, 22658.7

HWN: 4323, 5385, 6348, 8453, 13235.5,
17180

Reunion -
FUX: 8475.5, 13215.5, 16915

RFV: 6745.6, 7642.1, 7895, 10262, 10867.1,
10872, 13844.6, 16012.1, 16086, 20632,
26240

Toulon -
FUO: 4390, 5217, 6984

Additional shipboard frequency: 13265

Federal German Navy

Wilhelmshaven - DHJ59: 4283, 5361, 6913, 8648

Greek Navy

Khania -
SXH: 4610

Spata -
SXV: 8462

Italian Navy

Rome -
IDO: 4280, 6390, 6395, 8486

IDR: 4015.3, 7302, 9090, 13891.6, 16005,
25134

RIFMC: 5875, 11175

Royal Netherlands Navy

Goeree Island -
PBC: 4280, 4360, 6358.5, 6895, 8439, 8708,
13840.5, 17117.5

Spanish Navy

Madrid -
EBA: 4261, 6388, 6408.5, 6861, 6930,
8528.5, 12693, 13059, 14641, 17018, 17019,
20148

RETJ: 5430, 12469.5, 12703

98OQJ: 4230, 4279, 4311.2, 6251, 6357,
6377.5, 6447, 6771, 8326, 8391, 8441, 8447,
8458, 8465, 12693, 12932.5

98DDX: 6406.7, 25132

Cadiz -
EBC: 6840, 7926, 12008

Cartagena -
94PL: 4363, 6276, 6864

Huelva -
93WPR: 4196, 5273, 6844

Tarifa -
96OQZ: 4607

Turkish Navy

Ankara -
TBA/TBB: 4260, 4350, 6395, 6502, 8493,
8555, 8572

Izmir -
TBH/TBO: 3358.5, 6374, 8504, 12748.4

British Royal Navy

Whitehall - London -
GYA/GYB/GYC: 4150, 4246.3, 4301,
5422.5, 5414.5, 5434.8, 6676, 8334, 8493.3,
9059, 11010, 12740.3, 16115, 16115,
16889.6, 16918, 16937.3, 17030.8, 18061,
19860, 22422, 22454.5, 23030, 25012

London -
RXDB: 8449

Gibraltar -
GYU/GYW: 4221.3, 4366.7, 4892.5, 5229,
6371.2, 6509.5, 6865, 7392.5, 7747.5, 8627,
12325, 12824.2, 13134.9, 13473, 13942.5,
14759, 15737, 15760, 16987.2, 17263.9,
17468, 22630.1

Malta -
GYR/GYX/GYZ: 6481, 8566

Singapore -
GXM/GYS: 4335, 6481, 8630, 12781.5

Additional shipboard frequency: 6757

Royal Navy ships may also be held on many Portishead Radio ship calling frequencies.

RFA Omeda, a Royal Navy oiler similar to other support vessels sent to the Persian Gulf by Britain

NAVAL COMMUNICATIONS STATIONS
(All frequencies in kHz)
Tips on Hearing More and Improving Your Shack

A Monitoring Times Exclusive

How many times have you wanted to just sit down and talk with a fellow hobbyist about ways to improve your shortwave setup? For those of you who were unable to attend the 1990 Monitoring Times convention in Knoxville, Tennessee, this month, we've put together a special in-print version. This round table discussion focuses, as do all of our feature articles in October, on crisis monitoring.

How many times have you read about a monitor who seems to always be right on top of the action whenever there is a flare-up in the world. Ever wonder how they do it? And where do they get the right frequencies so fast?

Bob Grove leads our panel. He is the founder of Grove Enterprises and publisher of Monitoring Times. Bill Battles has carved his niche in the utility world and is the editor of the DX Reporters - Utility Voice section. Greg Jordan, an MT editor, manages the widely acclaimed broadcast frequency section of the magazine. Panelist number three is Skip Arey, another MT columnist who writes the beginner's column and has written in the past for several radio clubs. Finally, we get a feminine touch from MT's QSL and shortwave logging expert, Gayle Van Horn.

MT: Bob, let's start with you. How and when did you get started in radio listening?

Grove: I've been at it for about 40 years now, I started listening before I was even a teenager. My grandmother had a big old shortwave console and I delighted in tuning it through the shortwave bands listening to strange and wonderful signals from far off distant lands.

Battles: I started about four years ago. I was a scanner listener and enjoyed that aspect of the radio hobby. I found an ad in a magazine for a DX-400 and discovered shortwave radio and I've been hooked ever since.

Jordan: I started in 1979 as a hard core shortwave broadcast DXer. I did drift away for awhile, only to rejoin the hobby in 1984. I picked up some 70 countries in my first two years at the radio.

Arey: I've been at this for about 15 years now. I started by taking electronics in high school and got interested in radios. Then I discovered girls (giggle) and gave up the hobby for a while only to return after I got over girls.

Van Horn: I like to travel and shortwave is the cheapest way to get there. I've been at it since 1978 and I have enjoyed every minute.

MT: What is your primary interest in radio listening right now?

Grove: The highest frequencies that I ever tune are the low 800 MHz range, just to see how far away I can pick up cellular telephone calls. The lowest frequency range that I tune is generally about 3 to 4 MHz. I never listen to mediumwave and I listened to longwave only enough to know what is in my area.

From the standpoint of my quarry, I am virtually and exclusively a utility buff; I love two-way communications and the more intriguing the better.

Battles: My main interest is aeronautical listening. I like to listen to aircraft transmissions, civilian and military, with special emphasis on military air communications. I classify myself a utility buff.

Jordan: As I said before I started out as a shortwave DXer; however, today I specialize more in program content than in country counting [DXing].

Arey: I am a DC to light listener. I casually listen to everything I can hear but I especially like the spy numbers broadcast. I find them fascinating.

Van Horn: Right now I do sort of a weird mixture. I still like chasing the weak and rare shortwave stations that I need to add to my totals and QSL (station verification) collection, but I have shifted more towards broadcast programs and content. I have also crossed over the bridge, so to speak, as I love to listen to an QSL utility marine band radio traffic.

MT: What kind of radio and antennas do you currently use?

Grove: Going from left to right in my radio room I have a Kenwood TS-440S ham transceiver. Next I have an ICOM R-7000 receiver for VHF/UHF and then a Realistic PRO-2005. I also have our old Grove SP-100 enhancer speaker and PRE-4 preamplifier (for VHF-UHF reception). On the roof is the new Grove scanner beam and a variation of the Grove Skywire for shortwave.
Battles: I have several radios including an R-392 surplus shortwave receiver, a DX-400 and a Kenwood R-2000. On the roof I have dipoles cut for 8993 and 5696 kHz, and an inverted V antenna, all fed with coax.

Jordan: My shack consists of an ICF-2002 and a Kenwood R-2000. Out on the balcony I have what I call the "Dr. Frankensteins" antenna and that is the whip from an AN-1 antenna feed with coax.

Arey: My shack consists of a couple of R-390 surplus receivers, an ICF 2010 for general listening, a DAC-250 Tienmenmen square special and a PRO-2005. On the roof I use a Dandy DX portable with an antenna tuner and a Radio Shack discone for VHF/UHF.

Van Horn: I have a bunch of antennas on the roof. These include long wires and the Grove Skywire dipole. The receiver side of the shack consists of the main receiver, a Kenwood R-5000, Kenwood R-2000, Drake SFR-4, and a pair of Panasonic radios, the RF-3100 and RF-B300 as backups. I also have a Sharp FV-310 portable for on the road. The shack also includes about five scanners, and several pieces of ham gear.

MT: If you heard about a major news story breaking, where would you first hear about it and where would you go to start monitoring the story?

Grove: Well, I hear about things from a lot of sources. For instance, on this Persian Gulf crisis, I heard about it from an unlikely source. I received a FAX message telling us that something big was going on in Washington. A Dominos Pizza Parlor near the Pentagon had a sudden rush on pizzas from the Pentagon. No kidding.

Thanks to that FAX we knew something big had to be happening 'cause they were burning the midnight oil over there. There was a big push on pizzas for the Pentagon. That's just one of many examples I could give you.

Battles: I watch the TV news every night and if I hear something of interest, I retire to the dials to see if I can hear it first hand.

Jordan: I would probably hear about a breaking news story from the shortwave radio -- I listen quite a lot. I would probably stay tuned to learn more.

Arey: As an Army Reserve Chaplain, I'd probably get a call from my Commanding Officer (laughter). Seriously, I listen to medium wave [AM] a lot in the car and I'd probably hear about it on the AM radio from some all-news station.

Van Horn: I watch a lot of CNN [Cable News Network] programming. When I see something that interests me or one of their famous "This Just In" slides, not only do I pay attention to the story, but I start thinking in terms of where I would go to hear that story.

MT: We asked the senior member of our panel Bob Grove, what his most memorable monitoring event has been on radio over his forty years of listening. His reply:

When then President Reagan was shot by John Hinkley, Vice President Bush was in Dallas, Texas. I knew that Air Force Two would be in Dallas and I knew that at that time of day what the propagation would be like between Dallas and Washington, DC, for WHCA [White House Communications Agency] communications. I then simply predicted, based on my knowledge of the shortwave spectrum, that the frequency to hear AF-2 comms would be in 18 MHz range.

I couldn't have been tuning for more than a few seconds and I heard Crown [the White House switchboard] talking to Air Force Two. At that point I was anywhere from a half hour to an hour ahead of all the news services learning the condition of the President, when AF-2 would be flying back with the Vice President aboard, where he would be landing, what hangar he'd be going to, just about everything I wanted to know about the situation.

MT: When you sniff out a potential trouble spot or scenario developing, what reference do you grab from the shelf to get you started in your search to find the action?

Grove: Well of course I grab my own Grove Shortwave Frequency Directory. I'm sure the Bible is around here somewhere but I know darn well where the Shortwave Directory is [laughter].

Battles: I'm headed to the library and I'm always reading, I'm always reading. If I'm doing something for a specific agency, the Grove Shortwave Directory wins hands down.

Jordan: Since I do the frequency section of Monitoring Times, my own database is the most up-to-date source I have or know of. I have the absolute latest information in it so I do not need any other sources.

Arey: Well it depends on the situation and what I want to hear. If I am going shortwave broadcast, I consult the World Radio TV Handbook and the center section of Monitoring Times. If I'm headed in a Utility direction then the Grove Shortwave Directory or Klingenfuss' Utility Guide comes off the shelf.

Van Horn: I'd go for the Passport to Worldband Radio. I would also check the center section of MT.
How do you keep your records? Whatever works for you, just as long as you keep some!

Grove: Over the years, I have memorized certain frequency ranges in the shortwave spectrum that are hot listening areas. In fact, right in the beginning of my directory, I have printed these frequency ranges as a reference. Basically, during the nighttime check 4.2 to 10 MHz for your target. During the day look from 11 MHz up to either side of 18 MHz.

Battles: Basically I would do some general tuning over frequency ranges I have noted productive in the past. I do a lot of general tuning.

Jordan: I would probably do a lot of general tuning in bands I know would be propagating from the area I wanted to hear.

Arey: First, I would apply one of my old radio friend's general rules. Each morning he gets up and scans the Strategic Air Command frequencies. If things sound calm and normal then he gets dressed for work.

Serious, it would depend on the situation but I would do some general tuning across the utility bands first, then go to the shortwave broadcast bands.

Van Horn: I'd go directly for a Voice of America or British Broadcasting Company [BBC] newscast. They really keep track of what's happening. These two broadcasters are great when a crisis situation hits for the latest information.

MT: For the average listener that wants to hear more, what would you suggest he do to hear more and improve their listening setup?

Grove: There are only two components a person needs and nothing more: a receiver and antenna. The only exception to that is if the listener wants to monitor some digital communications, then they need some digital displays.

Oddly enough people often sell antennas short. They say "Well shoot, all you need to do is throw a hunk of wire up in a tree." Well, probably half your reception could be accomplished this way, but you can improve it with the following considerations:

1) Make that wire a specific length so that it has the best efficiency for the frequencies you are listening to.
2) Always, always use coax feedlines. Never use twin lead and never use single wire feeders.
3) An antenna no less than 20-25 feet and no more than 75 feet in length is ideal.
4) Get the antenna as far away from your residence and other noise generators as possible. And
5) Do some propagation planning. If you want to hear stations primarily from the east or west coast and you are located in the Midwest, align the axis of the wire pointed north-south. Planning the installation is important to improving your hearing capability.

On receivers, get the best receiver you can afford, don't buy a receiver that costs less than $200.00. This is absolutely the bottom level anyone should consider in their receiver purchase.

MT: If you had to pick one accessory as a must for the shack, what would that accessory be?

Battles: I find that a tape recorder is absolutely indispensable in the shack. Sometimes I might miss an ID the first time around and I can go back and replay the tape and get as many chances as I need to ID the station.

Jordan: I feel an antenna tuner is very important. I get better reception by being able to match the feed line with the receiver.

Arey: I think that a cushion for the seat in the shack is the most important [laughs]. On a serious note the tape is the most important accessory I can think of.

Van Horn: I agree with Skip and Bill that the most important accessory is a tape recorder. One added feature of using a tape recorder on a hard to hear station is the use of an audio filter to improve audio quality on the tape. Sometimes it can mean the difference between a tentative station logged or a confirmed station in the log book.

MT: Keeping track of your catches is important. What kind of records do you keep?

Grove: First off, I don't allow a computer in the house due to the interference it creates. When a computer goes on, I go off the air. I will allow one in the house when I get a laptop (reduced computer interference).

For now I write marginal notations on a logsheet of things that I have found and heard. I log them then confirm that with my shortwave directory. For VHF/UHF, I keep a master frequency book file that I have all penned in with frequency and information. I have been keeping that up for about 20 years and one of these days...

Battles: I do like most others and keep a logbook. I also maintain small hit list of specialty things I like to monitor such as SAC, Aircraft, Marine bands, etc. I also have a special box I call the "tactical box" with tactical frequencies and information in it.

Jordan: Much as I have mentioned before, my database for MT is my records and I use notes that I take to keep it up-to-date.

Arey: Records, let's see-Compact Disc, oh you mean on shortwave (laughs). I just use a plain old fashion logbook like the one I featured in the December 1988 issue of MT in my column. It works fine for me.

Van Horn: First I maintain a conventional logbook. I also use the computer to store station and QSL records, my country list and specialized station and country "hit" list. I use the hit list to keep track of new stations or countries I want to hear. The logbook is central to my record keeping, though.

Well, that about wraps it up and I hope that some of your questions were answered. I'd like to thank our panel of experts and I would like to thank you, our readers, for posing the questions. Remember to keep the questions coming and MT will help you with the answers. Good luck and I hope better DX.
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AFGHANISTAN Radio Afghanistan in English, some via Soviet relays: 0900-1030 UTC on 21600, 17655, 9635, 4940; 1830-1930 on 17745, 15510, 9635. Also on the last set of frequencies at 1700-1800 is the Pashto/Dari service Breeze of the Hindu Kush (BBC Monitoring)

ANDAMAN ISLANDS Air Port Blair, 4761-variable, in Hindi; closing at 1515 instead of the usual 1530 (Nobuyoshi Aoi, Japan, DSWCI SW News)

ANGOLA Voice of the Resistance of the Black Cockerel, pro-UNITA, heard from 1800 past 1845 on 7100 in Portuguese (BBCM)

AUSTRALIA Radio Australia added a special service for the Middle East, 1300-1500 on 17630 and 21775 from Darwin (Wade Smith, NB, and Bob Padula, Australian DX News)

BAHAMAS Radio Freedom was to be set up on Grand Bahama by three human rights groups, after the state radio refused to sell them airtime; unlicensed, and challenging the government to prosecute (CAN-A via BBCM) No frequency; most likely AM or FM

BANGLADESH Radio Bangladesh in English at 1200-1300 on 15195 and new 17817.1 (Wolfgang Bueschel, Germany, RCI SWL Digest) And the 1815-1900 broadcast heard on 15255 and 12032 (Ed LaCross, CA, ibid.)

BOLIVIA Radio Centinela, Tupaiza, is a 600-watt shortwave-only military station at C.C. 180, "La Voz Milion del Sud," nominal 5930 but actually on 5925, at 1100-2200; at 1700 relays news from Radio Panamericana (Andy Sennitt, WRTH, Radio Netherlands Media Network)


Radio Galaxia, Guayaramerín, new 5159.5 ex-4540, heard at 2220-2246 (Gabriel Ivan Barrera, Argentina, RCI SWLD)

BRAZIL Radio Ibituruna, Governador Valadares, heard on 0300 2nd harmonic 2840 (Ole Forr, Norway, SW Bulletin)

Deutsche Welle off-frequency on 6078.2 in German from 0100 past 0200, parallel to 6075, both weak, but from 0200 a powerhouse on 6075; 6078.2 is not a spur, maybe Brasilía relay, causing het (Ernie Behr, Ont., RCI SWLD)

CANADA RCI had Arabic staffers on the payroll since April, but no programming; the Persian/Arabian Gulf crisis prompted RCI to insert Arabic news via the Austria relay at 0330 on 0900, 1130, 0340 on 15275.

SWL Digest will commemorate its 700th program November 17-18; a contest will be held for those who return a survey questionnaire by the end of October, available now on request from RCI, Box 6000, Montreal, PQ H3C 3A8.

See last month: CBC says Sunday Morning will be back to 3-hour format in the fall; not my favorite program, but leftists will be pleased (Ernie Behr, Ont., World of Radio)

CHAD (non) Voice of the Struggling Chadian People has been observed on 11850 from 1600 in French, 1650 in Arabic, 1730-1820 in Sarah/Korah, resembles former clandestines from Zuwarah, Libya, Radio Bardai and Voice of the Chadian Popular Revolution (BCBM)

CHINA Voice of the Strait, mainly in Standard Chinese, but sometimes in Amoy, 0853-1000 on 11590. 7280, 6170, 6115: 1000-1721 on 11590, 7280, 6170, 5510, 4130, 2755 (double 1377): 2053-2200 on 7280, 6170, 6115, 5510, 4840, 4130, 2755, 2220-2230 on same minus last two; 2230-2410 on 7280, 6170, 6115, 4840. That was the first program; second program: 2154-2430 on 6000, 4900; 0030-0601 on 9505, 6000; 1255-1650 on 9505, 6000 (BBCM)

COLOMBIA La Voz de Guainia, Puerto Inirida, heard on 3499.97 at 0045 until closedown at 0154, island music and jingles every 10 minutes, announcing 3315 (SIM & HBG, SW Bulletin) (non?) Radio Patria Libre, "voice for the Camilist Union Army of National Liberation," 6315 at 0025-0120 and 1130-1220, frequency and times vary (BBCM)

COSTA RICA Parmenio Medina of Radio Sonora has bought Radio Impacto, and planned to rename it Radio Cordillera, probably on mediumwave 980 only (El Diario and La Nacion via Ken MacHarg, CR) AWR and RFPI apparently missed a chance to bid on Impacto's SW transmitters (MacHarg)

Radio for Peace International is in an "emergency situation"—must vacate premises by November because of interference caused to video production studio next door, a "technical nightmare." So a "Focus One" campaign has been started to raise $60,000, which would allow RFPI to install a more powerful transmitter at the new site nearby. Hopes not to be off the air more than a day or two for the move. For info on joining RFPI, or to send contributions, use this address: Box 10869, Eugene, OR 97440.

CUBA DXers Unlimited, from Radio Havana Cuba, has technical advice, propagation reports, phone interviews with Americans. Host Arnie Coro, CO2KK, says a second edition on weekdays has been added to the UTC Sunday 0400, 0240, 0400 airings (World of Radio)

(non) Radio Cuba Libre, clandestine from Florida reactivated, heard on 7100.5 with 5-minute transmissions repeated between 0030 and 0115h, also mentioning 7080, 7060, 7040 (David Crawford, DXSF via RNM)

CHILE Radio Esperanza, Tenuco, heard on 6088.66 from 0910 with Latin American pop-hymns to 1000 fadeout; not heard daily; also noted on 6088.6 variable from 0130 just above WYFR on 6085 (Ernie Behr, Ont., RCI SWLD) OSL says sked is Monday-Saturday 1400-2100; Saturday also 0400-1100; Sundays parallel to FM at 1100-0400 (Monday); 1 kW (Gabriel Ivan Barrera, Argentina, Onida Corta)

Varying around 7000 is new Radio Renacer, La Reina, near Santiago (WRTH LA News)

DOMINICAN REPUBLIC Radio Barahona, 4930, heard at 0028 with very bad audio (WJ Parks, DXSF via RNM) And at 0040-0135, overmodulated; likely the old R M1 transmitter (Terry Krueger, ibid.)

ECUADOR More USB tests from HJCB on 9397.2 in Russian at 0200-0430, parallel AM on 11925 (Wolfgang Bueschel, Germany, RCI SWLD) And on 8937.5 in the aero band, once in AM at 0310, LSB at 0230-0245 (Seiden & Krueger, DXSF via RNM)

October topics on Dateline 90; Mondays: 1st, a new dark age? 8th, creativity; 22nd, stench of ethnic hatred; 29th listeners' forum contest. DX Party line: Saturdays: 6th, SNAP at VOA, radio stamps; 13th, Cambodia, Grundig portable; 20th, Pitcairn, Pacific & SPEEDX reports; 27th, ANARC, SPARC. EDXC; Surinam. Both air at 1922 and next UTC days at 0052, 0252, 0522. John Beck, Clayton Howard and Rich Mc Vicar have tri-hosted some DXPLs.

Radio Cucuacoca, 6581, folk music from 0834 past 0934; could be a network name, as listed as La Voz de Juventud (Paul Edwards, Wellington, NZ, ODX & Onida Corta)

Radio Nacional, Limon, on 3370, 250 watts, ex-1320 at 1100-0400 (WRTH LA News via RNM) Radio Centinela del Sur, Loja, back on nominal 4890 at 0500-0515 with special live basketball parallel Radio Luz y Vida 4853.1 (Dario Monferini, Milano, Italy)
ETHIOPIA (non) Voice of Ethiopia on the Path to Democracy is the latest name for the Ethiopian People's Revolutionary Party radio, 0330-0400 and 1430-1500 on 7100, also announcing the 49 meter band. The EPRDF radios given last month keep shifting their schedules (BBCM)

GUATEMALA Radio Buenas Nuevas, 4800, has expanded to: 1100-1400 and 2200-0330, in five languages, mainly Mam (David Foster and Peter Bunn, OzDX)

INDIA AIR's DXers Corner is scheduled alternate Mondays at 1040, 1435, 1925, 2130 BBCM) North Eastern Service of AIR, Shillong, is only on SW; 1100-1200 on 7190, 1225-1305, 3255, in English and Hindi with English program summary daily at 1255 (Mick Ogrizek, ADXV) see also ANDAMANS, KASHMIR

INDONESIA RRI Semarang, back on 3935 after ages and ages, heard at 1440 (David Foster, OzDX) Earlier may pose a problem for ZLXA, New Zealand.

IRAN Tehran noted on 6080 in English to Europe 2200-2230 parallel 15084, not audible on 9022 (Bob Padula, ADXV) If correct, also two hours later than usual.

IRAQ With the invasion of Kuwait, Radio Baghdad's English broadcasts became the center of attention, 2000-2200 on 13660 to Europe; the 0130-0330 on 11810 and 11380 to North America and South Asia was much more difficult to hear. On Media Network, John Mainland in New Zealand reported new 11755 for the latter, but that was blocked by Havana on 11760. Reception of 13660 ranged from zilch to fair in mid-America; a mixture of Arab and western music, propaganda programs under various guises. On one occasion some slow-speed CW interference at 13661.7 caught our attention; this message was repeated over and over during the final half hour. "CO CO DE ARR AF TR AF (twice) HR TXT FOLLOWS SADAM /sic/ HUSSEIN IS A BUTCHER SADAM HUSSEIN IS MURDERER SADAM HUSSEIN IS A RAPIST SADAM HUSSEIN MURDERS WOMEN AND CHILDREN SADAM HUSSEIN WILL BURN IN HELL NUKED BAGHDAD NUKE BAGHDAD" On another occasion, someone was keying "BS" over Baghdad, per Jim Bohnannon on Mutual via Tim Hendel.

The widely publicized and sneered at broadcasts from Baghdad to the American troops were on 11860 at 1000-1200, 1600-1800, 2000-2200 (BBCM) About a week into the affair, Radio Baghdad must have picked its song titles for its significance: 'Re-United,' "I Will Survive," and "Ain't No Stoppin Us Now" (Ed Janusz, NJ via Bill Westenhaver, W.O.R.)

Iraq also pumped up its clandestine broadcasts, among them: revised Voice of Egypt of Arabism, 1830-2000 on 12025, 15150, 15170, 17720, time varying; and Holy Mecca Radio, perhaps 24 hours, on 9730, later 9720 (BBCM)

And bubble-jammed as much as possible, perhaps also using captured Kuwaiti transmitters, which were not heard broadcasting on any known frequencies. Including: against VOA on 6015, 7205, 9530, 11705, 11960; BBC on 6030, 11730, 15165, 15180, 17785; Saudi Arabia on 7150, 9730; Iran on 6080, 7215, 9670, 11715, 11940, Turkey on 11955, 15160; Syria on 15095; Jordan on 9560; unknown targets on 7225, 9710, 15350 (Wolfgang Bueschel, Germany)

Almost immediately, BBC and VOA expanded Arabic times and frequencies; and several other countries added Mid-East broadcasts primarily for their nationals trapped in Iraq and Kuwait, among them: Holland, Poland, RFE-Polish, Japan, Australia, Thailand, Sweden

ISRAEL Plans for a VOA relay in the Negev Desert continue to see-saw as Israeli groups fight the government over its environmental impact (AP and Washington Post via David Alpert, Alan Johnson)

ITALY Voice of Europe, 7536.9, English pops and ID 0231-0256 (Robert Ross, Ont., Fine Tuning) 7539.8 with address at 0202, 0302 (Bob Colyard, NJ, SPEEDX) 7536.6 around 0200, faded in for ID! (Bill Westenhaver, PQ, RCI SWLD) Often heard between 0730 and 2230 on 7539 variable (F Mougenet, France and D Monferini, Italy, Play-DX)

Radio Internazionale, Spoleto, 7140.1 seems 24 hours (S Gomez, Catalunya, and Moneferini, Play-DX)

Government has approved a broadcasting bill giving the PTT power to allocate frequencies instead of the former free-for-all; many operators will not get licenses, and there will be no private shortwave, if enforced (RN Media Network)

KASHMIR (non) AIR, Delhi, 11620 at 1300-1530 with a "special" (unannounced) program in Kashmiri daily, amounts to a clandestine operation (Kawwajit Sandhu, Ludhiana, India, NASWA Jamiyat). Rocket attacks and deaths threats on the AIR newswriters in Srinagar have caused the transmissions to be moved to New Delhi, fed at 0800-0900 on 6045, 0655-0705 on 11850 or 9565, 2130-1630 on 11620, 1425-1245 on 6140 or 4860 (RNMC) Confirmed only at 0350-0405 on 9630, 0700-0730 on 11850 (BBCM)

KAZAKHSTAN Radio Alma Ata, 2nd program, on new 11825 parallel 9505 at 1405 and 1614 (Valery N. Ostroverkh, USSR, DSWC SW News)

KUWAIT I was able to hear Radio Kuwait the day of the invasion, 13545 at 0500 until covered by static at 0515, just music (Kannon Shannugam, KS) Later that day, 13610 faded in about 1930, no English but music and Arabic announcements past 2330 parallel to 15495 (gh, OK) 15505 and 13610 stayed on thru the night, 15495 was just a carrier, 15505 became plagued by woo-woo jamming. Newer Kuwait frequencies 17895 and 13620 were not disrupted (Stephen J Price, FA) 13620 and 15505 were heard the day of the invasion with music and announcements (Wade Smith, NB) Was hearing 21675 before 1100 UTC, but ceased at 1111 UTC August 3. Until then there were appeals for help, in Arabic. Some mediumwave resistance channels lasted a bit longer, 540 and 990 kHz. Egypt said it would provide Kuwaiti exile broadcasters a shortwave frequency for a two-hour daily broadcast (BBCM)

LAOS (non) Satthani Vithayou Khachi Siang Luthabin Potpom Sat Lao (Radio Station of the Government for the Liberation of the Lao Nation) is a new clandestine on 10200 kHz, 0100-3000 and 0700-0900 in Latolian and Hmong; opens with national anthem of the former Kingdom of Laos (BBCM)

LIBERIA After several weeks off due to nearby fighting, ELWA was put back on the air by rebels to broadcast an "I lead the country now" speech by Charles Taylor; a few days later the station was heavily damaged by Doe forces' shelling, and may be permanently off the air (BBCM)

MALAYSIA V of Malaysia from 1130 Chinese and old pop songs past 1430, frequency varying daily up to 11885.8, another day on 11885.4 (Ernie Behr, Ont., RCI SWLD)

MEXICO UN Radio says it broadcasts via Radio Mexico Internacional, Monday-Friday 2100-2115 on 15430, 11770, 9705 (Radio Australia Japanese DX Time) in Spanish, presumably.

NEW ZEALAND Although call on 1602 kHz is 2ZA, Print Disabled Radio new on SW 3935 is ZLXA, initially scheduled Sunday,
Monday, Wednesday, Thursday at 0630-1000 (Arthur Cushen, NZ, RN) 

Thanks to RNZI for finally providing a detailed SW program schedule. Besides news generally on the hour, on 17675: UTC Monday-Friday 0105 Correspondence School, 0130 BBC Talking about Music, 0205-0400 In Touch with New Zealand; 0420 Business Report; 0430 features: Monday, Mailbox or travelogue; Tuesday, Insight—current affairs; Wednesday, Anthology—NZ writing; Thursday, About Pacific People; Friday, Spectrum—NZ people and places; 0510, calling various Pacific islands; 0630, Ear— for children of all ages; Friday 2305 Documentary; Saturday 0012, Money Matters; 0130 Saturday Magazine; 0130 Anything For a Laugh; 0617, Pacific Requests; Sunday 0600-0800 Totally Kiwi Music Show. On 0855 at 0815: Monday, Focus on Politics; Tuesday, Fishing Report; Wednesday, Rural Report; Thursday, Pacific Press Review; Friday, Fruit and Vegetable Report; at 0700-1100 Saturday, Scrapbook (via Adrian Sainsbury, RNZI) Times and perhaps frequencies too, will change when NZ goes on DST October 7—start looking for the above one hour earlier.

NORWAY Radio Norway’s English, now on Saturday as well as Sunday in September: 1200 on 25730, 21735; 1300 on 9590, 9585; 1600 on 15220, 25730; 1700 on 9655; 1800 on 17755; 1900 on 15235, 25730, 15220, 21705; 2100 on 15165; 2200 on 15185, 17730; next UTC day 0100 on 9615, 11925; 0200 on 9615, 11735 (Bob Padula ADXW) PAKISTAN Radio Pakistan, English at 1600-1630 on 13665 and badly off channel, 7287 (Peter Bunn, OzDX) Also on 15605, 17554.3, new 21670. At 0230 on 17690, 21730 (Wolfgang Bueschel, Germany, RCI SWLD) At 0230 on 9545, 15115, 17640, 17725, 21730 (Craig Seager, Radio Australia Japanese DX Time) At 1105-1120 on 17565, 21520 (Bueschel, RCI SWLD)

PERU Radio La Voz de San Antonio, Bambamarca, heard on 1325, confirms its nominal frequency is half that, 6627, 500 watts, affiliated with Catholic Church (John Fisher, Ont., NU via DSWCI SW News) Radio Huandoy, Caraz, 4562, heard at 2240; Radio Chota, Cajamarca on new 4890 ex-4850v, Andean music at 2150; Radio Vision, Juanjui, 5130, sked is 1000-0230; Radio Nor Oriental, 5270 signs off at 0300 (Rafael Rojas, Lima, Pampas DXing) Radio Cora, Lima 4914.6, operates 0930-0505. Radio Huanta 2000 on 4746.7 heard at 0200; La Voz de Oxapampa on 3260.1 at 0300 (Gabriel Ivan Barrera, Argentina, RN Radio-Enlace)

PHILIPPINES FEB’s revised English schedule: 0000-0230 on 15490; 0900-1100 on 11845, 9800; 1300-1600 on 11850 (Alok Das Gupta, India, RA Japanese DX Time)

SOUTH AFRICA Radio RSA planned to revise its English to Africa schedule in September: 0400-0500 on 11900, 7270; 1100-1200 still on 17835, 11900, 11805, 9555; 1500-1800 on 15270, 7230, adding 17790 at 1700 (BBCM) SUDAN Sudanese Radio observed on 11632 and 9535 at various times of day, on 9550 at 1330-1400 (when the anti-Sudanese government Radio SPLA broadcasts on that frequency) (BBCM)

SYRIA Radio Damascus, in English at 2055-2105, 2110-2210 on 15095, 12085; and the anti-Saddam Hussein program Voice of Iraq, in Arabic on 12085 at 0300-0400 and 1700-1800 (BBCM)

TAWAN The October-March schedule for VOFC relays via WYFR: 5950 at 0000-0900; 9680 at 0200-0600; 9852.5 at 2000-2300; 11740 at 0200-0500; 11805 at 2000-2300; 15130 at 2300-0100; 15215 at 0100-0300; 15440 at 1900-2000; 17805 at 2300-0100; 17845 at 0100-0300 and 1900-2000 (WYFR)

THAILAND VOA’s new relay will be 80 km NE of Udom Thani, seven 500 kW SW transmitters, 25 curtain antennas on a 1300-acre site, not connected with former USAF base (Mike Hardeste, Okinawa, DSWCI SWN) TURKEY Thanks to personal contacts while visiting Voice of Turkey, CIDX Messenger is a contributor to the DX Corner hosted by Miss Semra Eren, every second Saturday at 2225, repeated Sunday 0325 on 9445 (Sheldon Harvey, CIDX)

UAE UAE Radio, Dubai, lost its news credibility when it ignored the Iraqi invasion of Kuwait for at least 24 hours after it happened, presumably scared stiff (gh) Here’s the complete English schedule: 0330-0400 or later on 11945, 13675, 15400, 15435.0530-0600 on 15435, 17830, 17865, 21700; 1030-1200 and 1330-1400 on 15320, 15435, 15476, 21605; 1600-1640 on 11795, 15320, 15435, 21605 (BRT via Wolfgang Bueschel) News at the outset except for 1630

UKOGBANI British Forces Broadcasting Service, last heard during the Falklands war, returned to shortwave courtesy BBC, for Operation Granby in the Middle East: 0200-0230 on 7125, 9640, 13745; 0930-1000 on 15205, 17695, 21735; 1330-1400 on 15195, 17695, 21735; (RN Media Network) mostly pop music, greetings from loved ones. Best here at 1330 on 17695, sometimes 21735 (gh, OK) at 0200 on 7125, 9640 (Ben Krepp, MA)

UKRAINE Radio Kiev has started a Moldavian service on MW and announced SW 13795, 1600-1630, 1830-1900, 2000-2030 (BBCM)

USA Radio NewYork International, the short-lived international waters pirate in mid-1987, planned to come back in mid-September where it cannot be busted—buying time on WWCR, Nashville, 7520, UTC Mondays 0100-0500 (Karl Zuk, NY)

WRNO, New Orleans, kept on the air this summer for many weeks using a 500-watt backup transmitter while the main unit awaited tubes—a low—power DX catch! If you’ve been getting good reception on 13720 at 2100-2400, enjoy it while you can: this seasonal frequency will be gone from October 28th to March 31st, with 15420 extended instead.

No decisions have been made regarding present or future operation (David Briggs, KCB, Dallas, via Jonathan Shearer)

Re Mother Angelica’s plans for a European SW outlet: her 24-hour EWTN TV network is totally separate from the Official US Conference of Catholic Bishops, many of the more liberal bishops disagree strongly with her more conservative theological viewpoints.

The Vatican can do little if anything about what she does (Ken MacHarg, Costa Rica)

KUSW now carries the Mormon program Music and the Spoken Word, featuring the Tabernacle Choir, Sundays at 1600 on 15590 (CJC of LDS, SLC) KUSW on 9850 in English until 1300—sign-off, causing a horrific mess, splatter from 9 to 11 MHz, two huge, distorted spurs on 9700 and 10000, wiping out WWV one day; why is nobody complaining to the FCC? KUSW is worse than the Cuban R Moscow relay on 11840 (Ernie Behr, Ont., W.O.R.)

UZBEKISTAN Radio Vatandosh is a new service from Tashkent, 0230-0300 on 9740, 7325, 7335, 11960 (Valery N Ostrovev, USSR DSWCI SWP)

YUGOSLAVIA Radio Yugoslavia, in English: 0000-0045 on 11735, 5980, 6005; 1200-1230 on 25795, 21555, 17740; 1830-1900 on 11735, 9660, 7215, 2100-2145 on 15105, 11735, 9620, 7215 (BBCM)

ZANZIBAR Radio Tanzania heard between sign-on 1500 and sign-off 1831 on 11735 one day, 11734.2 another (Ed LaCroese, CA)
Broadcast Loggings

Let other readers know what you’re enjoying. Send your loggings to Gayle Van Horn, c/o Monitoring Times. English broadcast unless otherwise noted.

0058 UTC on 6690

0159 UTC on 4934

0220 UTC on 15320
NORWAY: Radio Norway International. Xylophone music, ID and comments on journalist/broadcasters strike. (Mark Seiden, Miami, FL) Monitored on 11840 kHz at 0520 UTC. (John Carson, Norman, OK)

0230 UTC on 11790
USSR: (Armenian SSR) Radio Yerevan. Armenian/English. National news updates, folk music, and poetry readings. (Helen Takessian, Tucson, AZ)

0232 UTC on 11830
IRAC, Montreal. National press review and newscast. Arabic music with fair signal quality. (Mark Seiden, Miami, FL) European service heard at 2000 UTC on 13600 kHz. Arabic service noted at 13052 kHz at 2000 UTC. (Stephen Price, Conemaugh, PA) (Bruce Grohman, San Antonio, TX)

0234 UTC on 9570
ROMANIA: Radio Romania International. “Sunday Studio Program” featuring Romanian literature and popular music. Audible on parallel 11490 kHz to Spanish services at 0300 UTC. (John Carson, Norman, OK) (Bruce Grohman, San Antonio, TX) (Jack Davis, Birmingham, AL)

0300 UTC on 9115

0325 UTC on 15970
YEMEN ARAB REPUBLIC: Radio Sani’s. Arabic. Usual Arabic programming with exchange by listeners to IDs at 0400 UTC. (Stephen Price, Conemaugh, PA) (Robert Babin, Shrewsbury, MA) (Sam Wright, Biloxi, MS)

0402 UTC on 15060
SAUDI ARABIA: B.S.K.S.A. Arabic/Turkish. Holy Koran recitations and programming features. Excellent signal reception for Turkish announcements. (Stephen Price, Conemaugh, PA) (Robert Babin, Shrewsbury, MA) (Frank Hillion, Charleston, SC)

0407 UTC on 4865
COLOMBIA: LV del Cinaruco. Spanish. National news topics, ads with musical jingles. Cancel Caracol network promos and extended news coverage on Medelin. (Sam Wright, Biloxi, MS)

0413 UTC on 12085
SYRIA: Radio Damascus. Arabic. Music to clear ID at 0415 UTC. (Stephen Price, Conemaugh, PA) (Robert Babin, Shrewsbury, MA) (John Carson, Norman, OK) (Brian Bagwell, St. Louis, MO)

0415 UTC on 11550
TUNISIA: RTB Tunisienne. Arabic. Middle Eastern tunes to announce ID as “Jimihurya ai Tunisiyta” at 0427 UTC. (Stephen Price, Conemaugh, PA) Monitored at 0340 UTC on 11970/12005 kHz. (Robert Babin, Shrewsbury, MA) (Donald Westbrock, Columbus, OH)

0427 UTC on 4904
CHAD: Radio Nationale Tchadienne. French. Station sign-on of instrumental and choral national anthem. ID and program comments to African highlife music. (Frank Hillion, Charleston, SC)

0428 UTC on 17675
NEW ZEALAND: Radio New Zealand. Station ID at tune-in and rapid drum signal at 0430 UTC. (Frank Babin, Shrewsbury, MA) (John Carson, Norman, OK) (Brian Bagwell, St. Louis, MO)

0455 UTC on 4865
HONDURAS: LV de Evangelica. Spanish. Religious prayers to station ID. Inspirational music and abrupt sign-off at 0500 UTC. (Frank Mierzwinski, Mt. Pleasant, PA) (Bill McDevitt, Durham, SC)

0514 UTC on 7376
COSTA RICA: Radio For Peace International. IDs and program promotions. Later noted at 0514 UTC on 7376 revealed a discussion on pollution in the US’s USSR’s Aral Sea. (John Carson, Norman, OK) Audible on 21566 kHz 2300 UTC. (George Neff, Lutz, FL) (Travis Prewitt, Las Cruces, NM)

0625 UTC on 7255
NIGERIA: Voice of Nigeria. “Sporting Scene” show and international news. ID and commentary on the South Atlantic Treaty Organization. (John Carson, Norman, OK) (Robert Babin, Shrewsbury, MA)

0656 UTC on 17830
AUSTRALIA: Radio Australia. Commentary on Australia’s views on nuclear arms, into music at 0627. (John Carson, Norman, OK) Audible on 5995 kHz at 0913 UTC. (Harold Bower, Sunbury, PA)

0745 UTC on 17855
MARIANA ISLANDS: KHI-Saipan. "Divine Truth" discussion at lunch-time. Interval signal, time/frequency, and ID to sign-off. (Mike Hardester, Okinawa, Japan)

0803 UTC on 9595

0935 UTC on 5650
ENGLISH: Radio Jesus de Gran Poder. Spanish. Gospel music and announcement bridges. Two station IDs, with programming monitored to 1000 UTC. (Frank Mierzwinski, Mt. Pleasant, PA) (Travis Prewitt, Las Cruces, NM)

1045 UTC on 3205
PAPUA NEW GUINEA: (New Guinea) Radio West Sepik. Donna Nagra’s tune of “Happy Girl in the USA dj” followed with musical countdown to No. 1 and occasional “echo effects.” (Earl Bailey, Oakland, CA)

1125 UTC on 3370

1155 UTC on 5005
MALAYSIA: RTVM-Sarawak. Balasa Malaysia. Recorded musical selections to signal time and “Radio Malaysia” ID. (Mike Hardester, Okinawa, Japan)

1158 UTC on 4000.2
INDONESIA: (Sulawesi) Radio Republik Indo-Kendari. Indonesian. Closing monologue at 1158 UTC. Interval signal with possible mention of “Khem” twice. News program from male/female announcers. (Mike Hardester, Okinawa, Japan)

1215 UTC on 3225
INDONESIA: (Kalimantan) Radio Republik Indo-Palangkaraya. Indonesian. Easy-listening and Indonesian gamelan music. Local station ID with good signal quality. (Earl Bailey, Oakland, CA)

1229 UTC on 6325
CLANDESTINE: Voice of the Khmer (tentative). Female announcer with near continuous music selections. Saxophone instrumental music at 1250 UTC. Station ID with announcements with possible mention of “Khem” twice. News program from male/female announcers. (Mike Hardester, Okinawa, Japan)

1240 UTC on 3245

1340 UTC on 21550
FINLAND: Radio Finland. Promotional for Finnish language course, and listeners letters. (George Neff, Lutz, FL) "Northern Report" on 9560 kHz at 0640 UTC. (Bruce Grohman, San Antonio, TX)

1500 UTC on 11940
SINGAPORE: SBC-Radio One. ID and typical “Oldies But Goodies” musical show. Quite strong signal to 1608 UTC sign-off. (Jack Hubby, Cupertino, CA)

1525 UTC on 3306
INDONESIA: (Timor) Radio Republik Indo-Dili. Indonesian. Male/female announcer du present vocal group music on five short commercial formats. Sign-off comments with RRI ID into chimes, “horn” signal and sign-off at 1546-20 UTC. (Mike Hardester, Okinawa, Japan)

1555 UTC on 23164.9
INDONESIA: (Sumatera) Radio Republik Indo-Bengkulu (tentative) Indo. Male announcer with several “HRI” mentions, without clear studio ID. Pop music, international news on the hour, and romantic tunes. (Mike Hardester, Okinawa, Japan)

1700 UTC on 4765
CONGO: RTV-Congolaise. Tentative. French. Unidentified station with carrier/pair program seemingly on without ID. Male announcer presents sports news, chat, and pop music tunes. (Mike Hardester, Okinawa, Japan)

1852 UTC on 9520
SWAZILAND: Trans World Radio. French. Sign-on interval signal and English ID, followed by French religious text. (Jerry Witham, Keaau, HI) (Earl Bailey, Oakland, CA) (Henry Magers, Monterey, CA)

2200 UTC on 11620
INDIA: All India Radio. World news at the hour. Extended talk on Indian trade with Bangladesh, and station ID at 2215 UTC. (Mark Seiden, Miami, FL) (Robert Babin, Shrewsbury, MA) (Frank Hillion, Charleston, SC)

2202 UTC on 11790

2350 UTC on 9655
THAILAND: Radio Thailand. “Community Calendar” of local events, instrumental Big Band music to "This is Radio Thailand external services.” Asian news bits with no parallel frequencies 4830/6070/7115/11905 kHz noted. (Mike Hardester, Okinawa, Japan)

EXTRALOGUE: On 4850
CAMEROON: Radio Cameroon. French/English. Program closedown in progress with multilingual IDs and comments. Frequency quote, Cameroon anthem and sign-off at 0002 UTC. (Stephen Price, Conemaugh, PA) (William Kruger, Miami, FL)

DX season is in full swing now - have you sent your logs in? —ed.
No doubt by now most of you have read this month's feature piece I did on the crisis in the Middle East. If you haven't, check it out as the activity continues to escalate as of this writing. After I finished writing the piece, I got to thinking again about Israel and their potential role in all of this.

Several years ago in PopComm an article appeared concerning one of the more unusual number stations on shortwave. The female voice would continuously broadcast numbers and letters over an over. These broadcasts have been identified and associated with the Israeli Moshad (Israel's CIA).

If Israel should get dragged into the current conflict activity, these stations definitely bear watching. Table 1 reflects the latest logs that have appeared in these pages of stations associated with the Israeli Moshad number stations. Listeners as always are invited to send your logs of these stations to Utility World loggings column care of the address in the masthead.

<table>
<thead>
<tr>
<th>Israeli Moshad Number Stations</th>
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<tbody>
<tr>
<td>C102</td>
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<td>C10 X2:</td>
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<td>C10 1D:</td>
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<td>KPA2:</td>
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<td>M1W2:</td>
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<td>SYN2:</td>
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<td>UX1X:</td>
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<td>VLB9:</td>
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<td>YHF:</td>
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**VHI IDed**

Geoff Halligey over UK way has IDed an unknown for UW marine listeners. For several months now this column has reported the existence of a new marine station in Australia using the call sign VHI.

According to Geoff, VHI is the Darwin Naval (Royal Australian Naval), Northwest Territory station in Australia. The frequencies used by this station are: 4316.0 6393.5 8512.8 12750.0 22348.0 all in CW. According to Geoff the station is used intermittently for fleet exercises.

Long time reader and reporter to this column, Rick Matthews, says that in the 1990 edition of the Klingenfuss Guide he listed VHI as Perth but in Supplement No. 1 has changed it to Darwin as well. In addition, Rick reports that some of the DX clubs have reported listeners receiving QSL cards for their reception of VHI from Perth.

Well, folks, another mystery solved by you, our readers. I'd like to thank Rick and Geoff for sharing this with us.

**Canada Spectrum Book**

It's great to write this column and read letters from all of you and just like above I asked a question about Canadian military frequencies. John Dunmore and John Simpson mentioned a book called Canadian Military Radio Frequency Guide by Robert S. Ing.

Shortly after that, Robert Ing drops a note and a copy of his latest book (2nd edition) in the mail. Boy, is this a winner. If you are interested in Canadian military monitoring, this one needs to be on your radio reference shelf.

The book covers the spectrum from 50 kHz to 50 MHz. Special sections in the book cover CW, FAX, RTTY and voice transmissions as well as a comprehensive list of Canadian military call signs, frequencies, CFARS (I've been looking for this for some time-ed.), naval and coast guard vessels in an easy-to-use format.

The new second edition also includes tactical radio codes, sources of equipment and information, and is still THE ONLY publication of its kind on Canadian military comms.

The author, Robert S. Ing, has been involved in radio communications both as a hobbyist and professional for over 15 years. He has written numerous books and magazine articles on a variety of subjects.


**Listens for Aeroplanes**

Victor Matthews in Nova Scotia found our column on aero monitoring interesting. He says he listens to aircraft both military and civilian on his Sony ICF 2002 mainly on the North Atlantic routes. He says he even gets to see some of them fly over Halifax and Dartmouth going both ways.

For some of you VHF enthusiasts, Victor says he picks up transatlantic traffic on 132.5 and local traffic at 119.2 and 124.2. Thanks for the note, Victor, and I will try to put together some more information on worldwide MWARA routes and frequencies in the near future for you and our readers.

**North Atlantic MWARA Changes**

Don Hamrick in Wilburn, AR, via MT's own Jean Baker has shared a very interesting bit of information concerning the NAT MWARA routes and frequencies. According to Don, the NAT B family of frequencies was decommissioned on 28 June 1990 and in it's place is the new designator of NAT E.

The new frequencies associated with this new family include: 3476 6628 8906 1136. This new family of frequencies is for the Central North Atlantic area and was implemented in order to reduce the congestion on the old set of frequencies.

All aircraft operating in the New York or Santa Maria FIRs will be assigned frequencies from the NAT A or NAT E North Atlantic HF Families. I'd like to thank Jean and of course Don for this interesting new HF air communications development.
Russian SESS Net Developments

Long time Ute World reporter Sam Ricks has checked in with an update on the Soviet Space Tracking network frequently heard on the marine bands in the HF spectrum.

Sam says that the Soviets are down to three tracking ships in the Atlantic and one in the Pacific. The Kosmonaut Viktor Patsayev had been at sea over a year when it recently departed for Leningrad via Dakar, Senegal. Sam also says that last year before the MIR manned space station was abandoned there were seven tracking ships in the Atlantic and one in the Pacific.

During the early part of this year, the Soviets scrapped the tracking ships Morzhovets, Nevel and Kegostrov and are expected to scrap the Borovichi later this year. In previous loggings in this column, Sam reported that the tracking ship NIS Kosmonaut Vladimir Komarov had turned up in Leningrad near the end of 1989. He recently found out the Komarov is being refitted at the Leningrad shipyard as the world's largest aerospace ecology center.

Current deployment of Soviet ships includes the Kosmonaut Y. Gagarin just south of the Azores and soon to be replaced by the Akademik S. Korolev; the Kosmonaut Pavel Belyayev in the Gulf of Guinea; and the Kosmonaut G. Dobrovolski off Montevideo. The Kosmonaut V. Volkov is in the South Pacific.

The Dobrovolski will probably be replaced by the trend this is in print by the Patsayev. The Soviets have no margin to provide for mechanical breakdown. They are apparently not relying on the Soviet Navy's Marshal Nedelin, Marshal Krylov and the new nuclear powered tracking ship SSV-33 to take up the slack as the Volkov is still deployed in the Pacific.

Finally, it seems the Soviets are cutting corners on their overseas tracking networks. The new civilian tracking ship Akademik Nicolai Pilyugin under construction since 1988 should be nearing completion. I am sure that Sam will be watching the SESS nets for a new call sign indicating the Pilyugin's arrival at sea. Thanks a bunch to Sam Ricks for providing this SESS net input to Ute World.

Bill Battles Checks In

Bill Battles has also replied to my request for CANFORCE frequency channel designators. From actual monitoring, Bill provides the following list of frequencies and designators as follows:

- 3046 Delta 1 Alpha
- 5850 Delta 1 Bravo
- 6693 Delta 1 Golf
- 6716 Delta 1 November?
- 6746 Delta 1 India
- 8993 Delta 1 Charlie
- 9010 Delta 1 Hotel

The only tentative is the 6716 listing. The CANFORCE frequency of 5684 uses SAC EAM broadcast in phonetics like our SAC EAM broadcast. Maritime comms to surface ships are on 4560 at night. They also act as the northern sector control for NORAD and use 9023, 11214, 11264, 10194, 10452, 14564, 14894, 14264 (??-ed) and 18027 at various times for exercises. Trenton and Edmonton are base control stations.

Bill also has added another CG channel designator for 7845. He says that he and Tim Braun have verified the designator for this voice scrambled channel as 3 Echo 12. Many thanks, Bill, and I hope you check in again.

USAF AWS Revisited

Last year we broke the story on the new USAF Weather Service station near Offutt. Dan Provost in Euness has provided an official message providing information on the new station that I shall repeat below:

The Air Force's First High Frequency Regional Broadcast (HFRB) is on line.

Data site location: Offutt AFB, NE 41.07N 95.55W
Transmitter site: Elkhorn, NE 41.35N 96.24W 1,294.35 feet MSL
Broadcast: Radioteletype (RTTY) on upper sideband (USB)
Facsimile (FAX) on upper sideband (USB)
Antenna type: Dual low/high takeoff, Inverted cone omni directional model type AS-407/SF
Broadcast range: to be determined (estimated range 375 km or between 1500-3000nm)
Power: 10 kW
Rate: 75 baud, 100 wpm RTTY 120 scan per minute FAX
Frequencies: Night-3231 5096 and Day-6904 10576 11120 19326

Now I would like to ask any of our readers: if you have any more frequencies for any more of the new HFRB sites, please forward those to this column for a future update I am planning very soon.

P7X-Whozit??

Long time friend Lloyd Scott in Bartow, Florida, is asking if I know who P7X heard on SSB at 0300 with CW traffic. The traffic appears to be five character code.

Lloyd, while I don’t have a definite listing on this station, my best guess is that you are hearing some sort of army station with coded traffic and coded call sign. Based on call sign blocks P7X would belong to North Korea but the time of intercept and frequency don’t favor reception to that part of the world. Can any of our readers help Lloyd with this mystery?

Good Marine Reference

Mr. Sewell in Massachusetts was recently talking to a friend and discovered a good reference for ships on the Great Lakes and the St. Lawrence Seaway, “Know Your Ships,” updated annually. It lists ships and their specifications, shipping companies, markings, lock operations, etc. It is available from Marine Publishing Company, Inc., Thomas Manse-Publisher, P.O. Box 68, Sault Ste. Marie, MI. He also says that they have a catalog with other titles available on request. Thanks for the note and I hope this helps our readers interested in marine band activity on the Lakes.

Something is Brewing

Black Bart has checked in again with another postcard message for MT Ute World readers. He notes that 13220.85 kHz in USB has been active all day with voice encryption. He says sometimes one side will be in the clear, by mistake? (Probably-ed) Traffic heard includes stuff in reference to ship deployments, transfer of personnel than a voice says:

“Seabrook, Seabrook, this is Primrose.” Then “Primrose this is Seabrook, go green-go for gold” then voice encrypted again. Anybody want to take a stab at this? And with that folks, it’s time to close this edition of Utility and check up on what you are hearing. Now on with your logs from the Utility World.
Utility Loggings

Abbreviations used in this column

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>AM</td>
<td>Amplitude Modulation</td>
<td>ISB Independent sideband</td>
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<tr>
<td>ARQ</td>
<td>Automatic Repeat Request</td>
<td>LSB Lower sideband</td>
</tr>
<tr>
<td>CW</td>
<td>Morse Code</td>
<td>RTTY Radioteleprint</td>
</tr>
<tr>
<td>FAX</td>
<td>Facsimile</td>
<td>UNID Unidentified</td>
</tr>
<tr>
<td>FEC</td>
<td>Forward Error Correction</td>
<td>USB Upper sideband</td>
</tr>
<tr>
<td>ID</td>
<td>Identification</td>
<td></td>
</tr>
</tbody>
</table>

2423.0 ZLB-Awarus Radio, New Zealand, with weather for Chatham is. In USB at 0642. (Gordon Trigg, Christchurch, New Zealand). Welcome to the column, Gordon. Glad to see you and several others overseas supply some foreign support this month.-ed.

4011.0 German female five-digit numbers station at 1945. (Tyke-UK)

4517.0 Virginia information net w/net control station call ASA2V4 working ASA2UN, ASA2FG and ASA2ZS at 2345 in USB. (Hurley, MD) Believe this is US Air Force MARS.-ed.

4550.0 Net control Keystone 131 discussing a repeater problem with Keystone 30 at 1240 in USB. (Hurley, MD) Pennsylvania CAP.-ed.

4561.0 LB calling VV in USB at 0250. (Dix, NY)

4565.0 O26/G64-comms about shifting frequency due to ISB broadcast (RFE) interference. They were having such a hard time hearing each other that both were yelling into the mics in USB at 0551. (Fernandez, MA)

4583.0 Middle East Region Net with net control Middle East 36 conducting roll call of members in CAP wings located in DC, DE, VA, WV, NC, and SC. Net officials closed at 2248 followed by unstructured communications by members in USB. (Hurley, MD)

4700.0 Habitat (NAS Moffett, California) working KB64B in broken English about landing at Moffett at 1306 in USB. Mentioned Channel Alpha 1 for Habitat and Channel Alpha 2 for aircraft. Heard line maintenance to Habitat with radio checks in clear, green and RTTY at 1635. (Brinkley, CA)

5085.0 English female three/two digit number station at 1508, parallel to 4700. (Hurley, MD)

5530.0 English female three/two digit number station at 2326. (Dix, NY)

5543.0 95 to 43 saying he will type it up and send it TT (RTTY) also message to G22 that the ES didn't make E7 at 1213 in USB. (Brinkley, CA) Based on your date, Bill, and when the Navy picks its E7's, this was definitely not a Navy channel. Probably Marine and Army.-ed.

5563.0 Units N45, 6J, 6X, H77, OJB. I believe this to be the battalion frequency talked about on 5819. I think this is Army. Every sentence ended with "break." They were trying to set up RTTY comms and finally went at "sync-d." The RTTY tones were +1 kHz from the voice frequency. At 1235 in USB. (Brinkley, CA)

5598.0 Gander/New York Aeradio working various aircraft from 0540 to 0621 In USB. (Mark Stevens, South Sioux City, NE)

5639.0 SNY2-Israeli Moshad number station at 2031. (Dick Moon, George, Republic of South Africa) Welcome aboard, Dick, glad to see your logs in the pages of MT's Utility World.-ed.

5649.0 Shanwick Aeradio working various flights all westbound in USB from 1430-1436. (Tyke, UK)

5707.0 Navy tactical CIC to CIC with units OS, O, CF, M, I, and L. This was a convoy with unit L bending the column. A lot of talk about different tracks at 1355 in USB. (Brinkley, CA)

5819.0 N4S and E1 trying to setup RTTY comms at 1231. Going to battalion frequency at 1231 in USB. (Brinkley, CA)

6221.6 Townsville Radio, Australia, calling all shipping in USB at 0650. (Trigg, N20 WNC-Tampa, Florida (Limited Coastal) working M/V Hale at 0005 In USB. (Perdue, AL) Neal, I'll take all the limited coastal you hear. Don't mind seeing them all.-ed.

6450.0 Whiskey alpha 4 calling CO (general call for any station). Made contact with Whiskey Romeo Charlie at 1225 (severe interference) in USB. (Hurley, MD)

6506.4 USCG COMSTA Guam calling with comm test at 1038 in USB. (Brinkley, CA)

6518.8 VCS-Halifax Radio, Nova Scotia, with end of weather and ID at 2343 in USB. Making a good trip to Alabama in total daylight path. (Perdue, AL)

6574.0 English male three/two-digit number station in USB at 0215. (Hill, MI)

6627.0 Unid station repeating five-digit groups in USB at 0215. (Hill, MI)

6680.0 Spanish female five-digit number station nat 0108. (Dix, NY)

6697.0 Channel alpha 2 for Habitat and Channel Alpha 1 for P3 aircraft out of Moffett KB 64B Japanese Navy to Habitat with more broken English at 1245. DD-105 another Japanese flight at 1305. Also heard the following: Ready 2 to Ready 3 then nothing heard at 1537. Habitat standing by for CATT (RTTY) at 1541. VA-801 from Habitat copy all out at 1635. RG-360 (Japanese) to Habitat for CRATT (Crypto RTTY) check at 0121. (Brinkley, CA) Looks like the Japanese Navy has invaded the left coast. I have seen this one listed before.-ed.

6731.0 Unid station with EAM broadcast at 2012 in USB. (Tyke, UK)

6738.0 JNS1 (Japanese Navy?) See 9021.5 and 11210.7 working Hickam for weather report on Barbara's Poing NAS, Hawaii. English so bad that Leftenner (hickman metro) had to repeat sloowly for him. The PIREP (Pilot Weather report) he gave was unintelligible and Leftenner gave up trying to get it at 1240 in USB. (Brinkley, CA)

6760.0 Two fishing boats with some chit-chat including X-rated talk at 0352 in USB. (Hill, MI) Boy oh boy, wonder if SAC DF them and a B2 paid them a surprise visit. You fishing boys might want to watch out where you camp your radio.-ed.

6761.0 Grift 31 (B-52) with phone patch through Dandelion (Autovon 5874491) to Strato Control for permission for bombing practice at 0341 in USB. (Henry Brown, East Falmouth, MA)

6784.0 CGR-774 calling CGR-774A and CGR-748 and VA12 calling VIA at 1243 in USB. (Brinkley, CA)

6837.0 Shell Oil Company ops in Lagos, Nigeria, heard at 1959 in ARQ and commercial traffic. (Moon, RSA)

6900.0 German female three/two-digit number station heard at 0402. (Fernandez, MA)

7500.0 Two unid stations in the green. One station had clear voice bleeding through, heard "Roger, I had negative contact." (Brinkley, CA)

7532.0 German female three/two-digit number station at 2337. (Dix, NY)

7701.0 PCW1 MFA Hague, Netherlands, with call sign only/AHO ider at 2345. (Dix, NY)

7860.0 English female five-digit number station at 0641. (Fernandez, MA)

8180.0 Numbers station? Oriental female in English giving long counts but sometimes starting with 0 or 1 or 4 and going up to 0 or 1 at 1300. (Brinkley, CA)

8425.0 PB3 calling YR9 in CW at 0038. (Dix, NY)

8441.0 CN-Nassau Radio, Bahamas, with CW QM marker at 1101. (Dix, NY)

8441.4 S2F2-Mombasa Radio, Kenya, with V CW marker at 0010. (Dix, NY)

8467.6 JIC-Tokyo, Japan, with newspaper in Japanese characters at 1710. 576/60 FAX signal. (Bideau, IL)

8502.0 PPL-Belem Radio, Brazil, heard at 0338 with CW NAVAREA broadcast. (Moon, RSA)

8535.0 ESU-Union station calling CO in CW, mentioned 8401.5. (Dix, NY)

8660.0 CNP-Casablanca Radio, Morocco, at 2317 with CW QM marker. (Dix, NY)

8995.0 UHK/UFA-Batumi Radio, USSR, with CO CW marker at 2301. (Dix, NY)

8960.0 ZAD2-Durrese Radio, Albania, with V/CW CW marker at 2303. (Dix, NY)

8711.0 VICS5-Sydney Radio, Australia, with a CW marker at 0726. (Trigg, NZ)

8728.2 Monaco Radio and TV service. Musical jingle and English/French voice marker in USB at 2024. (Moon, RSA)

8765.4 NMS-USCG COMSTA New Orleans working CGC Laurel (on 8241.5) with inquiry about the cutter getting a copy of the last tape, some comments as on 1313.2 earlier at 0344 in USB. (Fernandez, MA)

8773.0 V30/Y36 talking about RTTY comms (on same freq), couldn't get a go on RTTY so moved to Hotel 077 at 0337 in USB. (Fernandez, MA)
8777.8 "AT &T testing HICOM 1" then "AT &T testing HICOM 2" with long count. Then the phone company's 1,004 Hz tone for four minutes at 1918 in USB. (Brinkley, CA)

8955.0 Belem Aeradio, Brazil, in USB at 0307 working Clipper 202, SYC-Parco Aeradio, Trinidad, in USB at 0259 working Paramaribo Aeradio, Surinam. (O'Connor, NH)

8983.0 Japanese comms at the same strength as other comms, suspect this may be there bull channel at 1250 in USB. (Brinkley, CA)

9006.0 Trenton Military working several aircraft, one with exercise data in coded form, others with flight data and coded data being passed to Trenton. Bison 05 Alpha and Bison 05 Charlie had comms in reference to an upcoming landing at Halifax (in coded form) at 0700 in USB. (Fernandez, MA)

9021.5 Japan Air Leader (JNS517) giving weather report to flight at 1246 in USB. (Brinkley, CA)

9029.0 POX working CTP with coded traffic (Eritish accents) in USB at 0130. (Hill, MI)

9180.0 Piccolo type transmission station at 1538. (Brinkley, CA)

10075.0 Houston, Texas, LDOC working W-1926 requesting operator to make phone call for Captain Frank A/C located 100 miles south of Cairo. In USB at 0042. (Hill, MI)

10112.0 McClelland AFB GCCS working SAM 24130 but comms not good, changed to 122558 at 1740 in USB. (Brinkley, CA)

10674.7 Unid stations with scrambled traffic. Very busy channel, Whozit? (Barnette, NC) Coast Guard maybe, don't really knowzit.-ed.

11210.7 Japan Navy to Air Japan Air 51 with position report at 1310 in USB. (Brinkley, CA)

11214.0 479L working Trenton military with phonepatch traffic for a Colonel North (Hummmmmmm!!!!! ed.) requesting a van at airport for 15 VIPs. (Barnette, NC)

11226.0 Meredith calling Macaroni with radio check at 1452 in USB on X-ray 905. (Brinkley, CA)

12240.0 English female three/two-digit number station heard at 0305. Usually I have found this simulcast on 11463 but not this night. (Fernandez, MA)

12278.0 Piccolo type transmission station at 1320. (Brinkley, CA)

12279.0 UVA-Unid USSR station with CW marker at 0002. (Dix, NY) Anybody have any idea who this Russian is, I haven't seen anything in the ITU updates.-ed.

12279.0 VOM USSR station with CW marker at 0002. (Dix, NY) Anybody have any idea who this Russian is, I haven't seen anything in the ITU updates.-ed.

12279.0 MWI4-Israeli Mossad number station at 2351. (Dix, NY)

12290.0 XFO3-Salina Cruz Radio, Mexico, with CW marker at 2307. (Dix, NY)

12950.0 DUNX-Sengwarden Naval Radio, West Germany, calling C6E and CSZ in CW at 0153. (Dix, NY)

12950.0 IAR-Rome, Italy, with CW marker and ID/frequency marker at 0437. (Bilodeau, IL)

13015.5 NMU-USCG COMSTA New Orleans, Louisiana, working CGC Salvia. The cutter inquiring if they were getting test tape (cutter was on 123424). Comms were tough so comms shifted to 18494 but unable to copy them due to propagation conditions at 0248 in USB. (Fernandez, MA)

13190.7 LPC42-Ushuaia Radio, Argentina, heard at 1246 in USB with a voice marker. (Moon, RSA)

13190.7 VIT-Townsville Radio, Australia, with phone patch traffic at 0858 in USB. (Trigg, NZ)

13290.0 KKN39-Department of State Radio heard at 1645 with a CW QSA marker. (Hurtley, MD)

13218.0 Abnormal 10 (Vandenburg WSMC) to Teamwork, then to Abnormal 20 (Wheller AFB) with no answer at 1852 in USB. (Brinkley, CA)

13220.5 Have Quick type of frequency hopping radio comms. Hearing only partial syllables at 1314 in USB. (Brinkley, CA)

13282.0 KVM70-Honolulu, Hawaii, VOLMET in USB at 0957. (Trigg, NZ)

13324.0 Piccolo type transmission station at 1538. (Brinkley, CA)

13411.5 91L to any station for a radio check, VEN225 responded at 1912 in USB. (Brinkley, CA)

14429.0 Lubumbashi, Zaire, heard with commercial traffic in French at 1440 using ARQ. (Moon, RSA)

14487.0 English female five-digit number station. (Moon, RSA)

14915.0 5KMG-Bogota Naval Radio, Colombia, with RTTY traffic to CCG Chilean Naval Radio, Santiago, Chile, at 1330. 425/75N (Hawkins, MS)

15684.0 FNB-Unid station with ARQ idler and CW ID at 0030. This one is driving me nuts, any help on the ID. (Hawkins, MS) Hugh, I think the call should be FSB and that is Intepol, Paris, France. That is what i am hearing there.-ed.

15867.0 Data burst like those heard on 18594 at 2050. Found this frequency started data burst series then on to 18594 then 20690 at 2130. Also heard Aimilhy talking to an unid station at 0250. (Brinkley, CA)

16097.0 Piccolo type transmission station heard at 1537. (Brinkley, CA)

16453.1 ATV-Visha-Pankaj in USB at 1925 with traffic through GKT26-Portishead Radio. Also GZH-HMS Argonaut at 1757 working GKT62. (O'Connor, NH)

16582.0 JEWTS-Solomon in CW working WCC-Chatram Radio, MA. (O'Connor, NH)

16911.2 JNA-Tokyo, Japan, with CW marker at 1952. (O'Connor, NH)

16992.0 KOAT calling HKMR in CW at 1120. (Dix, NY)

16998.0 MPL-Belem Radio, Brazil, with V CW marker at 0024. (Hawkins, MS)

17029.0 JMC-Tokyo Radio, Japan, at 2147 with CW marker. (Dix, NY)

17038.0 URL-Sevastaspol Radio, USSR, with CW marker at 2130. (Hawkins, MS)

17272.0 UFL-Vladisvostok Radio, USSR, with DE CW marker at 2035. (Hawkins, MS)

17907.0 VADER 42 (USA) working New York Aeradio in USB at 1501. (O'Connor, NH)

17966.0 CI02-Israeli Mossad number station heard at 1848. (Dix, NY) Heard at 0050. (Bill Burghard, Denville, NJ)

18003.0 Gunspot to Abrook AFB GCCS with RTTY traffic, (this jumped all over McClelland's traffic). At 2215 in USB. (Brinkley, CA)

18005.0 Runningback working phone patches for Ben Hogan to Resurface, Position 1, Slowpitch, and Margate at 1909 in USB. (Laura Quarantiello, San Marcos, CA)

18171.0 Atlas with several phone patches from 2021 to 2111. At 2112 heard Ambush calling Atlas. (Brinkley, CA)

18172.0 Piccolo type transmissions station at 1337. (Brinkley, CA)

18193.0 Tail Boy Uniform/Tail Boy Victor with radio checks at 1920 in USB. (Fernandez, MA)

18405.0 RCT57-TASS Press Service Moscow, USSR, with English news bulletins about the Philippines at 1325. RTTY 425/50R. (Hawkins, MS)

18504.0 USA VOA-Greenville, North Carolina, with operational memos regarding frequency changes at 1340 using RTTY 425/75R. (Hawkins, MS)

19154.8 Musical tones in two stanza tune (seven then five tones), repeated in AM mode at 1912. (Fernandez, MA)

19234.0 Piccolo type transmission station at 1612. (Brinkley, CA)

22543.0 7TF-Boufank Radio, Algeria at 1446 with CW QSA marker. (O'Connor, NH)

MONITORING TIMES October 1990 31
The Scanning Report

Bob Kay
c/o MT, P.O. Box 98
Brasstown, NC 28902

The 800 MHz band contains plenty of action. But most scanner buffs never explore beyond the cellular frequencies. See what you've been missing in the world ...

"Beyond Cellular"

If you're a typical scanner buff, you probably haven't fully explored the 806 to 960 megahertz band. Whenever I mention 800 megahertz to someone, they immediately start talking about cellular phone monitoring. Although cellular phones can be interesting monitoring targets, they are not the only occupants of the higher frequencies.

A quick glance at an official "Frequency Allocation Chart," reveals that the world of 800 megahertz contains more than 40 categories. As you study the chart, don't be alarmed if you discover a few unfamiliar terms or abbreviations. The following paragraphs offer brief explanations that will help everyone to become successful explorers.

The "Public Safety" frequencies fall between the following ranges: 810.0 to 816.0, 821.0 to 824.0, 855.0 to 861.0, and 866.0 to 869.0. As you probably know, public safety includes police, fire and ambulance services. When you visit a city with an 800 megahertz system, the local police frequencies can be located by searching through the above frequency limits.

Business "SMR's," occupy several megahertz of the spectrum and they can be found at the following points: 816.0, 821.0 and 896.0. SMR is an abbreviation for "Specialized Mobile Radio.

SMR's are privately owned radio networks that provide voice and data communications for vehicle fleets in the service industry.

The "Private Microwave" frequencies can be found between 952.10 and 952.70. Nearly every scanner buff fantasizes about monitoring microwave transmissions. In reality, the fantasy rarely comes true. Microwave transmissions are "point to point." Think of them as narrow beams of energy that are precisely aimed between two fixed antennas. Microwave signals are always directed across open air space that does not contain natural or man made obstructions. Sure, the signal can be intercepted, but it requires sophisticated gear and a thorough knowledge of microwave technology.

The "Domestic Public" frequencies that begin at 928.0 megahertz are generally used mainly for paging purposes. These frequencies contain digital paging with some clear voice transmissions. The digital signals cannot be decoded and the voice messages are usually too brief to be of interest to third party monitoring.

Finally, let's take a peek at the cellular phone frequencies between 824.0 and 849.0 megahertz. Contrary to what you're probably thinking, this is not a new group of cellular frequencies. These are the actual mobile frequencies. Most of us are more familiar with the cellular base frequencies that appear further down the chart between 869.0 and 894.0 megahertz.

It is also interesting to note that cellular phone corporations are listed as "non-wireline," and "wireline services." Companies that do not operate a public land line phone system are referred to as non-wireline. Land line phone companies, such as Bell Telephone, that operate cellular systems are called wireline services.

As you explore the world of 800 megahertz, don't expect to find a new adventure within each category. Many of the allocations are not being used and are reserved for future use. The primary deterrent to expansion is the high cost of equipment. To install an 800 megahertz system in a large city, the price often exceeds 40 million dollars.

In cities that have been plagued by radio problems, the advantages of a repeater controlled 800 megahertz system often justify the exorbitant price. Here in the Northeast, local police communications are often interrupted by "skip." As most of you know, skip refers to the ability radio signals to bounce between the earth and the upper atmosphere. When conditions are favorable, radio signals can "skip" into areas that are thousands of miles away, completely disrupting local communications. New customers are lured to the higher frequencies by the absence of skip and the promise of a clean, quiet and dependable radio signal.

Monitoring frequencies above 800 megahertz doesn't require any specialized equipment. For optimum results, keep your coax lead as short as possible and waterproof your antenna connection point. The higher frequencies are severely affected by long feed lines and moisture.

A good 800 megahertz antenna can be made from a standard wire clothes hanger. If you're interested, I've got a complete package of home brew antenna projects that will keep you busy all winter. For more information, send an SASE to the Scanning Report and ask for "Antenna Info."

To monitor the frequencies that are beyond 800 megahertz, it's not necessary to buy a new scanner radio. Any programmable scanner radio that can search between 450 & 512 megahertz will work just fine. In fact, I've been using an old PRO-30 handheld.

If it sounds too good to be true, you couldn't be more wrong. Anyone can explore the new 800 megahertz band with a home made antenna and an old scanner radio. Have fun exploring.
Treasure Hunt

This is the last month and your last chance to win the complete, nine volume set of Police Call. Published by Gene Hughes, Police Call is one of the most popular frequency guides on the market. If you’re chosen as one of our two lucky winners, you’ll be the first person in your neighborhood to receive the new 1991 edition.

With the complete set in your possession, you’ll be capable of tracking down frequencies in all 50 states. And if you’re planning a trip, you can program the frequencies into your scanner, prior to leaving home! Here are the clues:

1. Turn to page 11, of the May 1990 issue. Look at the picture in the upper left corner. Is that a picture of Bob Kay? True or false?
2. In the July 1990 issue, locate “Bob’s Bargain Bin,” and provide the price for the R61C/GRR7.
3. How many people are on the front cover of the 1990 edition of “Police Call?”
4. What is the phone number to the Hyatt Regency in Knoxville, Tennessee?
5. What is the frequency for “LoJack?”

Send your answers to Treasure Hunt, P.O. Box 98, 28902. And remember, there will be two lucky winners. One of them could be you.

Frequency Exchange

Here in the northeast, nothing is more spectacular than the brightly colored leaves of autumn. Folks living in these parts, generally travel to the New England States for the annual, “Fall Festival.” Since October is the most popular month for viewing the fall colors, I figured we would join the fun. Our first stop is New Hampshire. Conrad Ekstrom has provided the following frequencies for our enjoyment:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.00</td>
<td>MacDonald’s order window, Newport</td>
</tr>
<tr>
<td>37.18</td>
<td>Newport public works</td>
</tr>
<tr>
<td>44.940</td>
<td>State Police, channel 1</td>
</tr>
<tr>
<td>44.820</td>
<td>&quot; , channel 2</td>
</tr>
<tr>
<td>45.260</td>
<td>&quot; , channel 3</td>
</tr>
<tr>
<td>45.220</td>
<td>&quot; , channel 4</td>
</tr>
<tr>
<td>45.180</td>
<td>Aircraft/radar use</td>
</tr>
<tr>
<td>47.90</td>
<td>New Hampshire Electric</td>
</tr>
<tr>
<td>48.420</td>
<td>New England Power Dams on Conn. River</td>
</tr>
<tr>
<td>151.985</td>
<td>Telephone Maintenance, Keasarge</td>
</tr>
<tr>
<td>154.54</td>
<td>Claremont International Speedway</td>
</tr>
<tr>
<td>154.60</td>
<td>Claremont International Speedway</td>
</tr>
<tr>
<td>155.00</td>
<td>MacDonald’s, order window to cook, Claremont</td>
</tr>
<tr>
<td>168.125</td>
<td>Army Corp of Engineers, flood control at Mt. Ascutney</td>
</tr>
</tbody>
</table>

Massachusetts is our next stop. Let's check in with WBZ-TV and speak with Nat Whittemore. Nat has provided over 1,200 Police and fire frequencies for the entire state. In addition, Nat’s list includes the PL tores for many of these agencies as well. Here’s a small sample of what I have:

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.80</td>
<td>Abington Fire/tone 203.50</td>
</tr>
<tr>
<td>483.0125</td>
<td>Abington Police</td>
</tr>
<tr>
<td>158.955</td>
<td>Amesbury Fire/tone 203.50</td>
</tr>
<tr>
<td>482.8375</td>
<td>Amesbury Police/tone 146.20</td>
</tr>
<tr>
<td>154.13</td>
<td>Belmont Fire/tone 100</td>
</tr>
</tbody>
</table>

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Twice the operating time for the same 10-12 hour charge. The MetroWest Pro-Pack 1200 sits right on your BC100XLT or BC200XLT to replace the original short-life pack (See MT’s review, Sept, p.37). Now only $59 plus $3 UPS in US.

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MC/VISA 704-837-9200, 800-438-8155

471.4125 Belmont Police/tone 131.80
453.300 Boston housing police
154.325 Chelsea Fire/tone 114.80
470.8875 Chelsea Police/tone 131.80
154.40 Dracut Fire/tone 146.20
482.4625 Dracut Police/tone 146.20

Nat's list is arranged alphabetically, by city. Toward the end of his list, Nat has also provided a few pages of general listings:

ANATOMY OF A QUALITY COAX CABLE

- CENTER CONDUCTOR - SOLID OR STRANDED (USUALLY COPPER)
- DIELECTRIC - USUALLY MADE POLYETHYLENE FOAM
- CORRUGATED COPPER OUTER CONDUCTOR (PROVIDES SHIELDING)
- OUTER JACKET (PROVIDES ENVIRONMENTAL PROTECTION)

NORTHEAST SCANNING NEWS:
212 W. Broad St., Paulsboro, NJ 08066

MONITORING TIMES October 1990 33
If you're interested in receiving the entire list, send $3.00 dollars and an SASE to the Scanning Report, P.O. 98, Bratsstown, NC 28902.

Anyone interested in visiting Rensselaer County, New York? Never heard of it? It's on the east side of the Hudson River, near Albany. Chris Linck, lives there, and he wants to share the following:

**Rensselaer Countywide State Police**

**46.10** Fire, dispatch 154.665 Car to car

**46.04** Ambulance 154.680 Car to base

**46.22** Fire, truck to truck 155.370 Interagency

**154.815** Sheriff, base 155.445 Base

**155.340** Emergency medical 155.565 BCI

**158.865** Sheriff, mobile

As we wave goodbye to Chris, let's stop for a coffee at the home of George Fuller. George lives 7 miles north of Hartford, Connecticut, and he has provided a list of confirmed frequencies.

**Bradley International Airport**

172.125 Navigational aids

172.175 Phone patches

172.900 Maintenance of airport radio

172.950 FAA mobile units discussing repairs

**Army Helicopters based at Bradley**

41.90

242.40

393.70

**Air National Guard**

34.15, 34.75, 40.05, 40.55, 40.65, 46.65 Flight channels

148.075 Base fuel trucks

149.225 Flight line

150.125 Base security

150.25 Mobile vans

Have you visited Groton, Connecticut? If not, let's drop in on Bruce Bouley, and see what he has to offer.

**33.90** Groton, Fire

**39.14** Police

**47.50** Ambulance

**155.3850** Lifestar helicopter

**158.790** Yale, campus police

In case you haven't noticed, we're returning to Massachusetts. As we near the border, turn on your scanner radios and punch in the following federal frequencies:

**163.00** VA security, Brockton

**163.20** U.S. Marshals

163.4125 Army Corps of Engineers

165.2375 U.S. Customs

414.75 Postal Inspectors

417.20 GSA

Many thanks to Mark Greenlaw, for providing the above frequencies. Out last stop is Mattapoisett, Massachusetts.

David Ferreira has invited us to kick off our shoes and spend the night. While you're relaxing and enjoying Dave's hospitality, don't forget to check out his list of scanning frequencies:

**151.7150** Ace auto body

**154.60** Acushnet Process Co.

**472.8875** American Eagle bus Co.

**160.80** Amtrak/Conrail

**463.40** Bay Cable TV

**35.12** Benco Electronics

**151.9250** IBM repair service

**464.95** Midcity scrap iron

**464.95** New Bedford gas & electric

**152.57** New England telephone

**462.325** Polaroid Corp.

**152.33** Taxi, (Blue Bird)

**461.60** Whaling City Cable TV

That's it for the Frequency Exchange. See you guys next month. In the meantime, you can invite everyone to your place by sending your favorite frequency list to, "The Frequency Exchange," P.O. Box 98, Bratsstown, NC 28902.

**Scanning with Zorro**

A scanner buff who calls himself "Zorro" has been helping California Police to arrest drug dealers. In Sonoma County, Zorro sent 13 tapes to his local police department. The tapes contained over two months of recorded cordless conversations between two local drug dealers. When detectives listened to the tapes, they obtained a search warrant and arrested several men for various drug violations. (Newspaper clipping sent in by "Zorro").

**Car 54 Where Are You**

In New York, the transit police are having a tough time communicating. The 25 year old subway radio system, has been breaking down on a regular basis sometimes for days. During these periods, transit police, who patrol the subways, tunnels and toll booths, cannot call for assistance.

According to the transit police chief, the problem has a significant impact on public safety. "If we can't reach an officer by radio, we can't stop crime."

To me, this sounds like a hot spot to monitor. If you're living in New York and have the transit police frequencies, send them to the Scanning Report, and I'll share them with other scanner buffs.

**Next Month**

Don't miss the November issue. We'll travel to more of your neighborhoods and explore the mysteries of the world of scanning. The November issue also begins the last Treasure Hunt for 1990. To wrap up the year, I've got six fabulous prizes that you can win. Keep on scanning!
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Audio Stain Remover

Background noises and extraneous "garbage" have always been a source of aggravation to anyone who listens to the radio. When the station that you want to hear is weak, the problem can be especially nerve-wracking.

Electron Processing is now offering an audio filter designed to improve reception of signals that are either weak or experiencing interference. The Sound Purifier makes reception more enjoyable by effectively sharpening your receiver's filters and thus eliminating the "garbage" from the sound.

Operation of the filter is easy. There are two front panel tuning controls and a handy volume knob. A potent 5-watt audio amplifier delivers plenty of sound, too.

The Sound Purifier connects between the external speaker and the receiver and is housed in a handsome 6" x 5.25" x 3" metal cabinet and is powered by 115 AC. (A mobile, 12 volt version is available for an additional $4.00).

The Sound Purifier is just $79.95. To get yours, send check or money order to Electron Processing, P.O. Box 68, Cedar, Michigan 49621 or call 616-228-7020.

Tune Shortwave on your Scanner

Just about everyone who owns a scanner has at least a tiny interest in what's going on over on the shortwave bands - not necessarily enough interest to go out and plunk down $600 for a receiver. But some interest nonetheless.

Grove Enterprises has an inexpensive way for scanner buffs to sample the shortwave bands. It's the Grove Scanner. All you need is a scanner with aircraft band coverage and a 9 volt battery.

A fully assembled module, you just plug it in and turn it on for continuous 4 to 22 MHz shortwave coverage. An easy-to-use conversion chart tells you where to tune and how to interpret your scanner's frequency readout for shortwave.

The Grove Scanner comes complete with antenna and interconnect cable. Cabinet and 9 volt battery not included.

Get yours for just $39.00 plus 2.50 UPS from Grove Enterprises at 1-800-438-8155 or write P.O. Box 98, Brasstown, NC 28902.

The Warship Directory

You can't tell the players without a program. So goes the old saying and nowhere is this more true than with monitoring the current crisis in the Persian Gulf.

There's little advertising copy with this version. It appears to be a one-way radio (i.e., an AM or AM/FM combo) complete with walkman-type earphones.

Undoubtedly available from a number of sources, we're getting ours by sending in an "official mail-in certificate" from the side of a box of Cap'n Crunch cereal. You can get yours by sending two UPC/Purchase seals from any box of Cap'n Crunch and $6.25 (no cash or stamps, please) to Dick Tracy Wrist Radio Offer, P.O. Box 3332, Maple Plain, Minnesota 55348.

Not a Facsimile

One of the most fascinating, yet little explored, facets of the monitoring hobby is copying facsimile photos, charts and other illustrations being transmitted over shortwave.

Perhaps two main reasons prevent most listeners from doing so. First, it requires relatively expensive accessories (special decoders and printers); secondly, most of the transmissions are oceanic weather charts.

But if you already have a computer, peripheral equipment isn't really all that expensive, and if you know where to look, you don't have to spend all your time copying weather charts from Rangoon.

Joerg Klingenfuss comes to the rescue with his latest guide, a superb collection of up-to-date frequencies and
is LONDON CALLING all diplomats, journalists and business communities!

BBC World Service editorial standards." That's good enough for us.
The ad for BBC Memo-Newspacks contains no information on price, leading us to think of the line, "if you've got to ask how much, you probably can't afford it,..." If you are not wondering "how much," contact Nancy Holloway at the BBC World Service, P.O. Box 76, Strand, London WC2B 4PH, England, or call 071-257-2946.

Fire!

Engine Company 224, respond to structure fire at 446 West 112th Street," barks the scanner speaker. For the next few hours, adrenaline flows through the veins of the exhausted firefighters as fast as the water from their hoses. If all goes well, the only loss will be things, not people. And if it doesn't go well...

In the time it takes to read this review, several fires will be intentionally set in the United States. Some of the fires will make innocent victims homeless, may cause injury or even death, and will certainly cost taxpayers tens of thousands of dollars in firefighting equipment, material and manpower.

Finding the cause of a fire is as much an art as a science. You learn what you can in class and in the field, but a good guide to investigation is essential.
The following two books from Fire Engineering are well written, authoritative and comprehensive. Both are well illustrated with handy indexes, and highly informative to the investigator as well as the fire curious.

Practical Fire and Arson Investigation by John J. O'Connor presupposes arson as a suspected cause, outlining the investigative procedure. Beginning with an overview of arson and arson investigation in the United States and continuing through the personality and motives of the arsonist, the volume examines the chemistry and behavior of fire as well as the investigative process to determine cause and origin.

Evidence collecting, examination of the fire scene, interrogation of suspects and witnesses, surveillance techniques and New York criminal law (a model used nation-wide) are covered in detail.

Investigating the Fireground by Calvin Phillips and David McFadden concentrates on the fire scene and subsequent determination of cause and origin without the heavy criminal emphasis contained in Practical Fire. Their approach is not necessarily better, but at least different. The text covers the origination of fire and how it spreads, and goes on through the laborious, careful examination of the fire scene, with emphasis on buildings and vehicles.

It is slightly more pictorial than the O'Connor book, but includes no references to fire victims. O'Connor, on the other hand, devotes several pages -- complete with vivid photos -- to fatal fires. It would appear that Phillips and McFadden have attempted to provide a slightly more sanitized, family-oriented course in basic fire investigation while O'Connor wishes to provide the criminal investigator with clout.

To have your new product or book considered for review in Monitoring Times, send it to Editor, 140 Dog Branch Road, Brasstown, NC 28902.
Both books are highly informative and provide an eye-opening look into fire investigation never seen from the outside. 

*Practical Fire and Arson Investigation* is $40.50 (postpaid) and *Investigating the Fireground* is $31.95 (postpaid) from Fire Engineering books, P.O. Box 21288, Tulsa, Oklahoma 74101.

**Computer Control for Kenwood R5000**

Scanman is a computer program that allows owners of Kenwood R5000 and TS440, and Yaesu FRG 9600 and FT7576X, to control their radios by computer. The feature-packed disk allows the user to enter a frequency and then increment up or down; enter two frequency limits and search between them; scan a file of memorized frequencies sequentially or by description, including two wild cards; create and save frequency files including up to 30 bands; store unlimited numbers of files with 500 frequencies each; and switch between duplex frequencies as well.

Scanman is available in 5-1/4" disk for $49.95 from J&J Enterprises, 4001 Parkway Dr., Bossier, Louisiana 71112.

**Not the Same Old Radio**

It's a scene that's repeated all too often in the homes of radio enthusiasts across this country. The scene is a festive birthday party. The place is Anywhere, U.S.A. There in front of the celebrant is a pile of colorful boxes from loving family and friends.

He rips into the first of the presents and finds a brand new, $1,285.00 Japan Radio Corporation NRDS25 receiver. Your face reddens. That's what you got him! If only you could find a gift for your favorite radio enthusiast that won't be duplicated!

Next time, give the brass-pounder an amateur radio calendar from KB1T Radio Specialties. Eighteen inches long by 11 inches wide, the calendar features full-page photos of people and events marking milestones in the history of communications. The calendar also lists contest dates, zone maps, lunar and meteoric data and other amateur-related tables.

Avoid the embarrassment of giving your favorite radio enthusiast just another expensive receiver. Give him the amateur radio calendar. Just $10.95 plus $2.00 shipping from KB1T Radio Specialties, Box 1015-Y6, Amherst, New Hampshire 03031.

**Tesla Coil Plans**

As a small child I was spellbound by the enormous leaping sparks in the Frankenstein movies. You know what? I still am! These special effects were not camera tricks. They were the singular accomplishment of a talented technician whose collection still remains intact.

How would you like to duplicate these feats? Imagine building a Tesla coil that generates a quarter-million volts of electricity, producing sparks over two feet long! Author Bill Evans did some forty years ago, scoring his new bride nearly half to death, so he dismantled it.

Evans' enthusiasm for the project was recently renewed and he has built an improved version, the plans (including photos and other illustrations) of which he shares with those of us who are fascinated with the cracking, leaping electrical fire and the sharp smell of ozone. Evans' plans include source lists as well as detailed parts descriptions and assembly instructions. Read the entire set of instructions before beginning; he adds bits and pieces of later experiments as he goes on. Evans closes his tutorial with a series of warnings about operating the device so that you don't zap your friend's pacemaker or burn down your house!

Now let's see... Where can I find a neon sign transformer, some glass plates, a few sheets of aluminum foil... Tesla Coil Plans is $10.00 postpaid from Bill Evans, 3014A West Victory Blvd., Burbank, California 91505.

**Home Cleaning Robot**

Panasonic is giving consumers a peek into the future of house-cleaning... With 1950s-style fanfare, the Secaucus, New Jersey firm has introduced a fully-automated Home Cleaning Robot.

This "intelligent" vacuum cleaner is capable of performing one of the least-like chores in all of life... learning Morse code. Whoops -- No -- Housecleaning!

The key to the extraordinary Home Cleaning Robot is its use of "fuzzy logic," a new type of technology that allows machines to make flexible decisions based on individual situations. As a result, Home Cleaning Robot -- or "HCR" as its close friends call it -- automatically moves through a room and cleans around obstacles such as furniture, planters or even randomly-placed objects. All you have to do is preprogram the size of the room to be cleaned.

HCR also has a built-in timer that allows the robot to clean while you are away on vacation. HCR cleans for up to 20 minutes and then automatically returns to its charging port. (We're looking for a version of HCR that can take offensive action should someone block its access to power.)

The Home Cleaning Robot is just 15 inches high and 17 inches in diameter, weighing in at about 40 pounds. Stop by your favorite robot store for more details.
The Remote Computer Scanning System™

The RCSS™ significantly enhances the ICOM™ R7000 receiver capabilities by providing automated PC control over the receiver scanning and memory functions.

Features

- Automatic detection and storage of active frequencies & other information while scanning.
- Scan using user specified Tuning Steps from 10 Hz to 100 MHz.
- Scan by Mode, Class of Service, or Type of Unit.
- Scanning now resumes upon loss of carrier with user supplied delay.
- Unattended frequency monitoring by time and date.
- Memory expanded to 1,000 frequencies.
- Monitor half-duplex communications by specifying companion frequency.
- Mouse/Keyboard driven graphic user interface.

To order or receive more information, contact us at 4639 Timber Ridge Drive, Dumfries, VA, 22026, USA.
Phone (703) 680-3559, Fax (703) 878-1460. RCSS™ is available for both IBM compatible & Macintosh computers.

Amateur Radio 1990 Equipment Buyer's Guide

The Equipment Buyer’s Guide gives you the edge in selecting just the right equipment for the shack, whether it be HF or VHF/UHF rigs or accessories. All the information is here in one handy, concise directory with descriptions, technical specifications, model numbers, retail prices and photographs. What do you do to get a license? How do you put a packet station on the air? What transceiver features are important to DXers? What equipment will you need for the new code-free license? These questions and more are answered in feature articles. Buy with confidence when you make your decisions based on all the facts.

ORDER YOUR BUYER’S GUIDE TODAY!
Don’t miss the single most valuable buying guide in the Amateur Radio field. Send only $4.95 today. Foreign: $6. U.S. funds. Foreign orders are payable in U.S. funds only by check drawn on a U.S. bank, or by U.S. Postal Service Money Order.
The 7 MHz Solution

John H. Watson, M.D., sat quietly reading the latest issue of Strand in his apartment at 221B Baker Street. His roommate was out for the morning and Watson was wallowing in the peace of passing time before the affairs of the day intruded.

Presently, the doctor was disturbed by a racket in the entranceway below. The clucking of Mrs. Hudson and the brisk ascending footsteps indicated that his friend had returned early from his adventures. The door swung open to reveal Mr. Sherlock Holmes, carrying an odd-shaped box with a brass horn protruding from its top.

Dr. Watson was seldom surprised at the unusual objects Holmes often brought to their flat. But this time his curiosity was piqued.

"I say, Holmes, just what have you got there?"


"One of those contraptions that picks sounds out of the sky?"

Holmes rolled his eyes skyward and explained "My dear Doctor, the process of wireless communication is far more complicated than simply pulling signals from the sky. Why, information can be gleaned from the far corners of the earth instantaneously."

Seeing his friend's obvious enthusiasm, Watson asked, "Really, Holmes? And just what can you hear with this wireless set?"

Sir Arthur Conan Doyle you're not, Uncle Skip.

Okay, okay... before I get myself drawn and quartered by The Baker Street Irregulars or The Master's Class, let me move on to a serious answer to Dr. Watson's question.

When most folks acquire their first short-wave receiver, they can be somewhat overwhelmed by the many marvelous and mysterious sounds that come out of the speaker. In addition to voices and music, one can hear all manner of clicks, beeps, hisses, swishes, tones, moans and what sounds like a poor imitation of Donald Duck. Now this can be very confusing to someone beginning the monitoring hobby, not just because these sounds are new, but also because you just can't help thinking that you are missing out on something.

In an effort to help everyone become more familiar with what's out there in the air, let's just take a look at a 1 MHz chunk on the HF spectrum and try to figure it all out. Everyone break out their general coverage receivers and dial up 7 MHz while we all take a trip through...

**UNCLE SKIP'S GUIDE TO WHAT YOU'RE HEARING**

Now people in the know are already whining about how crowded the 7 MHz band is. But this is exactly why we are going to give it a whirl, Bunkey. This little piece of radio paradise gives us a chance to identify most of the things you can hear in the HF bands. Fertile ground for finding the sounds, don'tcha know.

**AM Broadcast**

May as well start with the obvious, right? Most people latched on to their first world-band radio for the purpose of tuning in broadcasters from foreign lands. These are the voices and music that you can hear as you spin your dial through 7.100-7.300 MHz commonly called the 41 meter shortwave broadcast band.

But first, tune up 7.325 MHz during the evening and you can probably hear The World Service of the BBC. Try 7.345 MHz to pick up Radio Prague International, Czechoslovakia. Or dial up 7.520 to hear WHRI, Noblesville, Indiana, to get a taste of the growing number of domestic stations.

You have probably noticed that these three stations are slightly outside the 41 meter band. True enough, but they are very easy to hear and recognize, you can then use them as a guide to examine other SW Broad- cast stations throughout the band. May they also serve to remind you that band edges are artificial constructs and many wonders can be found just slightly over the edge. You will be likely to log broad- casters up through 7.400 MHz. Actually, if you spin up into the neighborhood of 7.400-7.415 MHz on weekend evenings, you may just log one of several domestic "Pirate Broadcasters."

Be sure to take some time to listen to how SW AM sounds different from the AM radio in your car. On the shortwave bands you will hear signals fading in and out. Patience in listening to a signal that is less than perfect will often reward you with a new logging. Take your time with a signal.

**CW Code Transmissions**

While Continuous Wave transmissions are becoming an anachronism, many folks still enjoy transmitting via the international Morse code.

Tune around between 7.000 and 7.150 MHz. You will hear short beeps or buzzing sounds that come across as, you guessed it, dots and dashes. If your receiver has a CW button or a BFO (Beat Frequency Oscillator) turn this on for better reception.

Also if your receiver has variable filters, you can separate out the various code transmissions by setting things to the narrowest position. The signals you are hearing in this portion of the band are Amateur Radio operators communicating with one another.

If you want to understand what these folks are saying, you will need to learn the code. It's fairly simple. Purchase a code instruction tape from one of the advertisers in the pages of MT. You should be able to learn all the letters at a slow speed, 5 words per minute, with a few minutes practice every night for about a week.

Once you have done this you can listen in on the hams that occupy the 7.100 to 7.150 portion of the CW frequencies. This is where novice code operators are allowed to transmit. As your ability to copy code increases, you can tune back down through to 7.000 MHz where the high speed, extra class, ops hang out.

By the way, once you have picked up the code you are half way to your ham ticket, why not go all the way and join in the fun of amateur radio?

**SSB the Radio Duck**

Did you happen to notice that sound that comes across like Donald Duck with a mouthful of marbles as you tuned through the broadcast frequencies? 7.150 through 7.300 is also the single sideband section of the United States 40 meter amateur radio band. Hams can transmit either upper sideband (USB) or lower sideband (LSB) but convention dictates that they will be using LSB on forty meters. If not, do not despair, so long as you have a BFO (that thing you used to make code sound better) you can turn that on and tune it until you clarify the SSB signal into something that sounds more like a human voice.

As you listen you will hear hams talking about just about every subject under the sun. Folks with common interests will congregate together and form nets to share information.
would (RTTY). One of the most popular modes of communication among hams is RTTY and it has been a staple throughout the shortwave spectrum, particularly on frequencies between 7.300 and 7.999 MHz.

RTTY and Packet — beetles and crickets

While tuning through the CW portions of the ham bands, you may have heard a sound that can best be described in writing as "beetle beedle beedle beedle beedle." It sounds sort of like something you would expect to hear out of a video game.

Or you may hear something that sounds like a Gieger counter out of one of those 1950s type science-fiction movies. For this sound, if you tune over to your BFO and CW switch, you hear it turn into the beedle beedle sound. These are amateurs communicating using radioteletype (RTTY).

While RTTY has been around for decades and has mainly been used by commercial entities and the military, home computers have allowed many hams to begin to enjoy this mode where in the past they had to resort to surplus mechanical teletypes.

If you wanted to actually monitor the RTTY communication, you would need a home computer, a demodulator and a bit of expertise gleaned from Jack Albert's READING RTTY column. Beyond this, I make mention of RTTY signals mainly to let you know what they are. There are hundreds of commercial, government and military RTTY signals in the 7.300-7.999 MHz band. I refer you again to the books listed under the SSB heading.

Now if you tune over to 7.0833 or 7.0913 with your CW/BFO switch turned on, you will hear crickets chirping. These bugs are hams using the government frequencies as well because the military had been using it for years. I guess this is called technological trickle down.

Kind of makes you want to look into getting hold of the hardware to hear it, huh?

Time Signals

If you will just be so kind as to tune into 7.335 MHz you will hear the steady tick tick ticks and beep beep beeps of radio station CHU, Ottawa, Canada. You can tune this up every listening session to make sure your QSL reports will be accurate. Time signal stations can be heard throughout the shortwave spectrum, but CHU is very popular among hams and powerful enough to hear with even a modest receiver.

Spy Numbers

If you have read even one issue of MT, you have probably become aware of these strange stations that just come on the air and spout a mess of numbers. What are they? Spys? Conjecture about the whys and wherefores of numbers stations have kept more than one member of the DX press gainfully employed.

Our trip through 7 MHz will give you a chance to hear some bonafide radio intrigue. Try 7.443, you will hear a woman repeating Kilo Papa Alpha Two over and over again. 7.525 will give you a woman giving five number groups in Spanish. 7.532 will turn up groups of five numbers in German. Loggings by numbers enthusiasts have identified over 25

directory of all current nets is available from the American Relay League, Inc., 225 Main Street, Newington, CT 06111, publication #027-5, $1 plus shipping.

But if you want a taste of net operations you might give a listen to the SWBC DXing net heard every Sunday morning on 7.240 MHz at 10 a.m. Eastern Time. Not only will you hear ham radio operations, you will pick up lots of tips to improve your shortwave DXing. Double your pleasure, folks.

You will also hear SSID transmissions (both USB and LSB) throughout the 7.300-7.999 portion of the band. These are commercial and government stations. Two great sources for identifying all these folks are The Shortwave Directory by Bob Grove, published by Grove Enterprises and the Klingenfuss Utility Guide. Klingenfuss Publications, both available from many of the advertisers in MT.

Is that all there is?

Not by a long shot, Pal. I didn't even bring up spread spectrum, pulse or data encryption. Radio communications are constantly changing as new technologies are developed. Keep an ear peeled to 7.300 MHz from time to time. This is a frequency used by stations granted experimental licenses to develop new radio technologies. You may just tune in a bit of the future.

One Band Wonder

You don't have to limit yourself to just 7 MHz when you are beginning to feel your way around the radio hobby. Old Uncle Skip just picked that portion to suit his fancy. However, there is some value, for the beginner, in staking out a megahertz or two and getting to know it really well. By gaining expertise over a small segment of the entire shortwave spectrum, you will lay a foundation of experience to help you to listen intelligently throughout the rest of the bands. This hobby can easily overwhelm you, Compadre. Give yourself a chance to grow so you can really enjoy it.

And as Holmes finished telling "his Boswell" all there was to hear on the wireless set, what else could Watson do but utter those words he has said so often after a conversation with his friend: "Amazing Holmes... simply amazing!"

"Not at all my dear Watson." And Holmes turned his full attention to the wireless set as the Doctor looked on.
Texas Military Monitoring

Everything is big in this state. Ten gallon hats and wide open spaces notwithstanding, you can also include the number of military installations within its borders when you talk about "big." This state houses two Strategic Air Command (SAC) bases and Carrois and Dyess Air Force Bases (AFB). San Antonio could be called the military city the Valero city as it is ringed by several major military installations including Lackland AFB, home of the US Air Force Recruit training installation.

Yes, this month we are going to take a look at the Lone Star State, Texas, as seen and heard by the readers of Monitoring Times' Federal File. Federal listening here is almost as big as the state itself.

Ben Saladino starts things out from the Dallas-Ft. Worth area. Ben says that the military aircraft band (225-400 MHz) is one of his favorite bands. Without further ado, here is what Ben has put together.

**Notes/Abbreviations:**

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<tr>
<th>AR-##</th>
<th>Aerial Refueling Track designation</th>
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<tr>
<td>CP-##</td>
<td>Command Post</td>
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<tr>
<td>SAC-##</td>
<td>SAC Strategic Air Command</td>
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<tr>
<td>ARTCC-##</td>
<td>Air Route Traffic Control Center</td>
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</table>

**Frequencies:**

- **F-4s:** Corvette ##/Speed ##/Sukko ##/Golf ##/Kadok ##
- **B-1s:** Hawk ##/Mason ##
- **C-130s:** Horo ##
- **KC-10s/DX-135s:** Pecos ##/Intern ##
- **Lima/Omaha:** US Customs aircraft

Bill says none of his list is hearsay. It is all from FAA-DOD Defense pubs and is completely accurate. Bill would also like to get some US Customs VHF/UHF frequencies for his area. If anybody over that direction can help, drop me a line. He has confirmed 163.625 as a border patrol frequency.

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<thead>
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<th>Table 1</th>
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<td><strong>Frequencies:</strong></td>
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<tr>
<td>Laughlin AFB</td>
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<td>Kelly AFB</td>
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<td>Randolph AFB</td>
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<td>NAS Corpus</td>
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<td>Ft. Hood AAF</td>
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**Aerial Refueling Routes:**

- **AR-113:** 283.9 AR-167 235.1
- **FAA Flight Service Stations:** 255.4 (Common)
- **Army Helicopter Operations:** 41.5 (NBFM)

**A big Texas thank you to Ben for his great list and now it's time to move south to College Station where Bill Pritchard checks in with his Texas list of frequencies in Table 1. Bill has been an Aeroc monitor for years and uses his trusty MX-5000 and now a new PRO-2005. He is a licensed pilot and has been around air traffic control for about ten years. Bill says that being a Texas resident, he (and lots of readers) have plenty to listen to. There is no doubt about it; Bill, Texas is big on frequencies.**

**Acknowledgments:**

- **F-4s:** Corvette ##/Speed ##/Sukko ##/Golf ##/Kadok ##
- **B-1s:** Hawk ##/Mason ##
- **C-130s:** Horo ##
- **KC-10s/DX-135s:** Pecos ##/Intern ##
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frequency. (Bill, that one is a repeater ouut-rod) and he would also like some FBI info for his area.

Bill, I recommend you check for customs on 165.2375 (R/out) and look in the 163.8 to 164.0 area for FBI repeaters. You should have at least an FBI repeater in your area as I do show an office. If you don't find any Customs comms, see if your local phone book has a local listing. No listing, no comms.

In fact, for all our Fed File monitors, a check in your phone book's government pages is an excellent way to find who you might hear in the federal ranges. Don't start looking for a State Department channel if you don't have an office in the area. You will get dead air unless a foreign dignitary comes into your area.

Thanks again, Bill, and yes, I would like some pictures for the column. Sounds like a neat hobby.

Continuing south now on IH-35, we roll into San Antonio and check in with another Bill (sorry, I could not read your last name). Here are a few Alamo city channels that Bill has put together.

**Approach/Departure:**

- 261.7 292.3 294.7 308.6 324.5 341.5
- 349.0
- **Area Monitor:** 335.9 350.9
- **Tower:** 227.6 283.7 338.9
- **Metro:** 344.6 Ground: 289.4
- **Clearance Delivery:** 289.0
- **ATIS:** 269.9 PTD: 372.2
- **Rag Top:** 261.1 *Press On*: 292.9
- **Other frequencies heard/usage unknown:** 264.6 279.7 318.1
- **First:** 173.025 *Falls Remote*: 256.4
- **Security Police:** TAC 1-139.925R/141.775M TAC 2-138.475
- **Fire Department:** 173.025
- **Hospital:** ER/Ambulance 170.375 172.300-Paging
- **OST:** 138.075R/141.525M "Saturn Base" 138.175
- **Commander's Net:**
  - F1 139.075R/138.900M phone patches
  - F2 139.850R/139.275M
- **FBI:** MARIS A: 134.450R/142.150M
- **and 134.950 simplex**
- **Other Departments:** ?? - 139.650 (lones)
- **148.095 136.4875 (command post?)**
- **Airplane:** 173.6125
- **Command Post:** 163.325
- **Command Squdrn:** 173.5375 Paging: 407.475
- **Civil Engineering:** 163.5675
- **Transportation:** 165.1375 Base Ops: 137.4375
- **Listed channels but nothing heard yet:**
  - 149.475 163.4625 173.5125 173.5875
  - 431.150 431.450
- **Army Corps of Engineers:** 163.4375
- **FAA:** channel 7 172.825R/165.225M
- **NOAA NWS:** 162.475 and 416.100 link to 162.475
- **Archer City:** NAVSPASUR 216.960 uplink to space
- **143.5R/142.5M Main**
- **FBI:** 163.0375R/167.5125M
- **Wichita Falls can be linked to Dallas-Fl. Worth office via microwave**
- **Fl. Sill, Oklahoma:** 164.100 Mps
  - 34.5 30.5 36.58 Range Control

Well, that about does it for Tom's list and the state of Texas this trip. Thanks to all of our Lone Star state contributors for their assistance in presenting this month's feature. I will have some additional Texas material next month including an exclusive look at NAS Dallas and their radio systems and callsigns so you live in the Metroplex area, stay tuned.

Command Jets End 29 Years of Flights

Boy, did I do a double take when I read that headline. George Neff sent it to Gayle Van Horn, who forwarded me to this article concerning the USAF Looking Glass aircraft. The article which appeared in the Tampa Tribune says that the Looking Glass aircraft will no longer stay in the air continuously. With President Bush's approval and no fanfare or advance public notice, the last uninterrupted string of flights landed at Offutt AFB in mid-summer.

Since the first of the flights at the beginning of the cold war, one of several EC-135 planes -- a military version of a Boeing 707 -- has been flying over the United States at all times. These aircraft act as an emergency command post should a surprise attack kill top US political and military leaders.

As soon as one place would land, the next one would take off, but that practice has now ended. The amazing part of the story is that the squadron flew more than a quarter of a million flight hours of accident-free flying.

"The Looking Glass aircraft will no longer remain on ground alert and fly random sorties each week. An Air Force spokesman told me, "The roles and responsibilities of the Looking Glass aircraft have not changed, only the alert posture."

The Air Force says that by putting the Looking Glass on the ground during reduced tension, they can save some money. With that, it's time to get a cold cubo to go and check the scanner for more Middle East traffic. See ya in 30.

---

For Military Monitors Only

**T-shirts designed exclusively for M.T. readers by M.T. author Steve Douglass**

**Cobra Belle 100 Mission Shirt:** Printed with a westward-panning man, the men of the 55th SSRW who fly those dangerous missions call it "Tickling the Bear's Tail" and it is the inspiration for this colored hand silkscreened shirt.

100% Cotton, White Only

State Size S,M,L,XL

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6 to 8 weeks delivery

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Giant Talk Shirts: B-1 B-2 B-5 Bombers surround the colored hand silkscreened design & even the Giant Talk frequencies are listed.

ONLY $12.00

Monitors Only

6303 Cornell

Amarillo, Texas 79109

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MONITORING TIMES

October 1990

43
Indianapolis ATC

A visit to an Air Traffic Control facility can be a fascinating experience. If at all possible, it would be great for each and every aero comms monitor to sit a tower controllers do at Terminal (Tower/TRACON) installation, FSS, or Enroute Center first hand. However, since not all of us live within visiting distance of one, "Plane Talk" will take you on a tour of these facilities.

Today, we will visit the Indy (Indianapolis) Air Route Traffic Control center. Our guide is Thomas Parks, Air Traffic Manager of the ARTCC, who explains some of the ongoing operations involved with enroute control, including how they differ from Terminal Facilities and other details. Tom is the former Air Traffic Manager of the Indianapolis International Airport ATC Tower. Consequently, he has experience within both ATC Terminal facilities and Enroute Centers. We'll clear the runway for Thomas:

"ARTCCs are responsible for ensuring the safe and efficient flow of aircraft while enroute between airports. This is why they are called 'Enroute Carriers' or Air Route Traffic Control centers. There are 20 of these centers on the United States mainland, and one each in Alaska, Hawaii and Guam."

"Situations and conditions for controllers at centers and those who work at terminal facilities are very different, albeit equally demanding. Controllers at a center have responsibility for much larger chunks of airspace than do those who work at a Tower/TRACON (Terminal Radar Approach Control). Also, aircraft approaching, landing and departing are worked at lower altitudes and slower speeds than those at a center. Keeping in mind that if you're trying to provide separation between two aircraft at high rates of speed and altitudes, you're going to have to do it a long time in advance -- much longer than you'd have under terminal control circumstances. Airplanes don't react well -- that is to say they don't climb or turn well at high altitude. The wings on modern jets simply aren't made for turning at high rates, so you have to be pretty careful about that.

"An ARTCC has a lot more to do with flow control. The terminal control facilities virtually don't do it themselves -- they're the recipients of whatever happens within the flow system. It can get rather sticky for a terminal controllers when you have to hold flights on the ground, maybe a thousand miles away from their destination, because that airport is saturated.

"Radar utilized at a center is called narrowband or digitized radar and can be worked in nearly normal indoor lighting. It doesn't require almost complete darkness as does the radar in a TRACON facility. There it's quite dark and has a certain mystique about it. Mostly, they use what's called broadband radar which has a sweep going around, which is the kind you see depicted in the movies. Here at the center, radar comes from five different long-range antennas, and is called mosaic -- which means it takes the best of the five antennas to present the picture to the controller, depending on which part of the airspace he's looking at.

"The Indy ARTCC is surrounded by centers which are as busy, if not busier, than we are. They are -- in order of number of operations worked -- Chicago, Cleveland, Atlanta and Washington centers. These are the four busiest ARTCCs in the United States. However, the Indy ARTCC is now ranked fifth in the country for sheer volume of air traffic operation.

"Interaction between centers is pretty incredible. Each ARTCC has boundaries which butt against another center's airspace and whatever one does affects the other. To give you an example -- we can't overload Chicago Center and vice versa. So it's necessary to start vectoring, climbing or descending aircraft, according to what their traffic load is like, maybe even one or two centers away if things look like they may get hairy for them. Incidentally, all of the ARTCCs are linked by computer, which performs a lot of functions formerly handled manually. We also use it for communications with other centers, as well as land lines (telephones).

"The various control positions at an enroute center are normally staffed with a radar controller and a manual controller (see photos). The radar controller actually works the aircraft on the scope. The manual controller's direct responsibility is to answer land lines and to keep the strip markings current. Actually, he is probably going to be
doing considerably more than that. In many instances, he'll also point out aircraft to the radar controller, acting as a second pair of eyes, so that nothing gets by him that shouldn't.

Another controller who may be involved is called a "tracker." If a position gets extremely busy, he will plug in and track the airplanes, make all the computer entries, and also answer some of the land lines. This way, the radar controller only has to watch the radar and talk to the aircraft he's working. Sometimes, there will also be an air traffic assistant on a position. They do not work airplanes, but handle the flight strips (the strips which have pertinent information on each aircraft worked by the controllers) and other noncontrolling duties.

"Centers' control areas are usually spread over parts of several states. For instance, Indy Center's airspace includes parts of Indiana, Illinois, Ohio, West Virginia, Kentucky, Virginia and Tennessee. Each center is divided into areas of coverage. This center has five areas of coverage, which are labeled A, B, C, D and E (see chart).

These areas are subsequently divided into sectors, with at least one VHF/UHF frequency pair (there are 43 VHF and 46 UHF frequencies here) to a sector. Transmitters receivers for these frequencies are remoted to 18 sites, so that every inch of the center's airspace is covered, no matter how far a sector may be from the center facility itself.

The sector's airspace is designated as follows: Low -- surface to flight level 230, hi -- flight level 240 and above, and when traffic gets really busy in the higher flight levels, the high side is divided again from FL 350 on up to the limits of controlled airspace, which is Flight Level 600. On the Saturday and Sunday midshift - and other times when traffic isn't very heavy, sectors are combined and a controller may be working three or four frequencies, though usually with less of a workload than he would have during peak traffic times.

"The number of controllers at an enroute center varies depending on the size of the facility. At the Indy Center, there are 325 controllers. Approximately 180 of them are full performance level, with an additional 30 or so qualified to work some of the positions, probably all of the manual controller functions, or "d" side as we call them.

"As the system is still in the process of recovering from the strike back in 1981, there's a lot of training going on here as well as at other facilities. Training for developmental (neophyte controllers) from the academy normally starts out on the manual positions, and they have to qualify on all of them, radar as well as manual to become an FPL. Of course, even a Full Performance Controller transferring here from another ARTCC would have to qualify on all of the positions and learn the center's coverage.

'The Air Traffic Controller workforce at all of the facilities is fairly young, with the average age of an FPL being around 32 or 33. They're fairly highly paid, bright and are the cream of the crop.

"It will be interesting as well as challenging to be part of the new system of air traffic control that is coming us very soon. Technology and new developments will change a lot of things, but controllers will still be involved and I'm going to be looking forward to what the future will bring."

Thank you, Tom Parks. We appreciate the interest you've shown and assistance given to "Plane Talk" over the years.

The Readers' Corner

- In our June column, Bill Battles, New Hampshire, asked what type of aircraft was utilized by the FAA's Flight Check trips. Laura Quarantiello, California, tells us that they're North American Sabreliners -- white with blue stripes -- and have the FAA logo on the vertical stabilizer.

- This navigational aide (located in Yarmouthport, Massachusetts) photo was contributed by Bob Holmes, Rhode Island, who wanted to know if it was a legitimate FAA navaid and was it used by both military and civilian aircraft.

I was pretty sure that it was a VORTAC station but sent the photo to Bert Hunenault, Canada, for confirmation, as he provides us with a lot of technical assistance. Bert agreed that it was indeed a VORTAC, which is a TACAN (Tactical Air Navigation) station located with a VOR. The military use the TACAN portion, which is similar to a UHF VOR/DME facility. For convenience and economy, TACAN stations are combined with VOR navaids at many transmitter sites -- thus the name VORTAC.

- Bruce Brue, Minnesota, tells us that he monitored Aeroflot 4130 (heavy) approach and departure at Minneapolis/St. Paul International Airport when Soviet President Gorbachev visited the Twin Cities on June 3. The airport was closed to other traffic for about 20 minutes before his arrival and the same conditions prevailed before his departure.

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Monitoring "Amateur TV" Signals

While it's commonly known that you can hear ham operators, few people realize that you can also see them on the television. Along with a variety of other modes, the Federal Communications Commission also allows hams to send TV pictures.

Known as "ATVers" (amateur television), these hams transmit and receive "live" fast scan TV images "over-the-air" just like your local commercial TV station. These can be in black & white or full-color with sound. Unlike your local commercial TV station, however, you'll find some pretty strange programming is transmitted on the ham TV bands late at night and early in the mornings. You are liable to see just about anything. In fact, there are those who say that ham TV could give America's Funniest Videos a real run for their money!

What type of TV pictures do ATVers send? They send "live" pictures, home-movies, pet tricks, on-the-air construction or building projects, video from remote planes, boats and trains, weather radar relayed images from the National Weather Service, and more. They use outdoor cameras mounted at high places, run "mobile and portable" and even send signals launched from weather balloons at 100,000 feet!

Several of these balloon flights have already been conducted in Indiana, Ohio, Arizona, Kansas, Tennessee, Illinois and Florida. When one of them goes up for its two hour flight, you can watch ham TV pictures that they're sending for about 300 to 400 miles! Watch Monitoring Times for advance information on future flights.

Ham TV is not restricted to the stratosphere, either. Two upcoming space shuttle flights (STS-35 and STS-37) are expected to send ham TV signals back from space! Dr. Ronald A. Parise's long-delayed mission is expected to carry, among other things, slow-scan TV pictures (still-framed images in color) and it is believed that Lt. Col. Kenneth D. Cameron, scheduled to fly aboard STS-37 later this year or early next, will be equipped to receive (and, many of us believe, transmit) ham TV pictures from specially authorized ground stations.

Some ham FM radio repeaters on VHF relay NASA Select Space shuttle audio. To see if there is a ham radio FM repeater near you that is retransmitting this information, program your scanner to "scan" from 144.0-148.0 MHz. Tune in and join the fun!

Even ordinary ham TV signals can travel over great distances on UHF when the band is just right (DX). My 430.250 MHz TV signal here in Iowa has traveled across Illinois, Indiana to Ohio -- over 270 miles -- more than once! Most hams transmit 100 watts of power on high-gain beam antennas so the signals are quite viewable with modest receive equipment. It is really neat to be able to "see" someone waving back at you from several states away!

What interest is this for you non-hams? Good news! You, with your shortwave monitoring station, can receive these signals if ham TV activity exists in your area! How can you tell when ham TV is on-the-air? You won't find it listed in TV Guide or your local newspaper TV show listings. You'll have to do what you do best - monitor. Set your receiver to tune just below UHF TV Channel 14 in the 420-440 MHz band.

You may also want to purchase the North American National ATV Directory ($5.95 plus $1 postage, from Spec-Com Communications, P.O. Box 1002, Dubuque, IA 52004), which lists over a thousand operators with maps of active locations. With this list you will be able to tell what system is in your area and even what UHF-TV frequency they transmit on.

If you have a cable-ready TV set or VCR, you might be able to tune in the hams on Channels 57-60 without buying additional equipment. You will need to disconnect your cable feedline, however, and hook up an outside UHF TV antenna. Some TV's and VCR's tune far enough below Channel 14 to get HAM-TV signals directly.

Of course, there are special antennas and preamps that "boost" signals available for ham TV reception. Contact John Beanland at Spectrum International, Inc., P.O. Box 1084A, Concord, MA 01742. Their catalog is

1988 478 mile record DX signal, from Bill Brown W8BELK in Findlay, OH, to Mike Stone WB0QCD at Lowden, IA

Clyde Miller WB4AOH, Owensboro, KY
Hams themselves use inexpensive little black boxes called "down converters" to receive FSTV signals. These devices are similar to your cable-TV boxes. They convert 420-440 MHz TV signals to Channel 3 or 4 on your TV set. Don Miller W9NTP of Wyman Research (RR#1 Box 95, Waldron, Indiana 46182) manufactures these down converters in kit, assembled board, and ready-to-go units. They start as low as $39.00 for a kit and $89.00 for already-built units.

Give him or his wife Sue a call at (317) 525-6452. They are nice people and can answer a lot of your questions about receiving ham TV signals. Always be sure to mention Monitoring Times when requesting ham-type information from any of these sources.

Interested? If you would like a VHS format, 6-hour videotape of Ham TV activity from 1989-1990 here in the USA, send $49.95 plus $1.50 for postage and handling to USATVS Videotape Duplication Service, c/o of Buddy Olson, Route 2 Box 154A, Maquoketa, IA 52060.

In our next column, we'll talk about intercepting and viewing Amateur Radiotele-type, slow-scan TV and WE Fairfax data signals at minimum cost! Hint: Go out to your local Radio Shack Store and buy one of their discontinued COCO TRS80 Color II Computers. They are cheap! I've seen them selling for as low as $25-00-50.00.

You do not need an expensive CTV monitor, any standard B/W or Color TV set will do. Several neat low-priced programs exist that you can load by cassette, that require absolutely no interface — just an audio wire from your shortwave receiver (nothing else to buy!).

Get a COCO, get somewhat familiar with it, and we will broaden your shortwave monitoring capabilities to printing out ham and shortwave broadcast radiotele type signals on your TV screen and printer! 'Till next time, America... WB0QCD.

---

**HAM-TV'er Fred Sharp at his Cleveland, Ohio, ATV station**

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the qsl report

Gayle Van Horn

AIRCRAFT TRAFFIC
American Samoa-Hawaiian Airlines #461, SELCAL BCFM (DC-9), 6553 kHz USB. Full data prepared form card, photos of the aircraft, and a route chart. Received in 6 days for an English utility report, souvenir postcard and return postage. Airline address: Hawaiian Airlines, Box 30088, Honolulu, HI 96823 (Rick Albright, Merced, CA)

South Atlantic-RAF Lockheed Tristane Tanker, Ascot #3482, 11234 kHz USB. Partial data prepared form card with "216 Squadron" (Brize Norton, UK) date-stamp. Also received a color photo of the aircraft and a friendly letter. Verified by G.A. Hannam, Flight Lt. Airline address: c/o HQ 1 Group, RAF Upper, Pewsey Wiltshire, SN9 6BE, United Kingdom (Rick Albright, Merced, CA)

ALGERIA
Algerian Press Service, 14922 kHz USB. Partial data friendly typed letter, with frequency schedule included. Verification signer. Received in 30 days for a utility report and one U.S. dollar for return postage. Station address: B. Bureau Che Guevara, El Djazair, Algeria, Africa. (Hugh Hawkins, Port Gibson, MS)

ASCENSION ISLAND
Haven Radio, RAF Communication Station, 11234 kHz USB. Partial data prepared form card with unit stamp and a color postcard of East Crater. Received in 41 days for an English utility report, a souvenir postcard, and return postage. Station address: Officer in Command, Comm Flt., RAF Ascension Island, South Atlantic (Rick Albright, Merced, CA)

BRAZIL
Radiobrasil, Rio de Janeiro, 9650 kHz USB. Partial data prepared form card, with illegible verification signer. Received in 11 days for an English utility report and return postage. Station address: P.O. Box 3000, Vila Isa, Rio de Janeiro, Brazil. (Claude Stephenson, Springfield, MO)

FRENCH POLYNESIA
Tahiti FUM-French Naval Radio, 12664.5 kHz USB. Full data prepared form card with glossy tourist brochure, verified by George Janes, senior technician. Received in 60 days for an English AM report and 2 IRCs. Station address: P.O. Box 4, Victoria St., Roseau, Commonwealth of Dominica, West Indies. (Randy Stewart, Springfield, MO)

ICELAND
Icelandic National BC Service, 15770/13855 kHz. Full data scenery card, with stamp: illegible verification signer. Received in 26 days for an English report. Station address: Elvisi St., 150 Reykjavik, Iceland. (Darren White, New Augusta, MS) (Tim Johnson, Galesburg, IL)

HUNGARY
Radio Budapest, 8938 kHz. Partial data QSL card, without verification signer. Received in 40 days for an English report and one IRC. Station address: P.O. Box 1, H-1800 Budapest, Hungary. (Fraser Bennett, Fairborn, OH) (Nick Terrence, Huntington, WV)

ITALY
RAI, 9575 kHz. Five (!) no data scenery cards, without verification signer. Station pennants, poster and Italian recipes. Received in 56 days for an English report. Station address: Viale Mazzini 14, 00195 Roma, Italy. (Mikel James McMerrin, Fair Haven, MI)

JAPAN
JFA-CHOU Gygoyo Radio, 8547.5 kHz USB. Personal letter and colorful data scenery card, verified by Mr. Masato Amano. Received in two years for an English utility report. Station address: Central Fisheries Coast Station, 1,25 26-3, Futawahigashi, Funabashi-City, Chiba 274, Japan (Hugh Hawkins, Port Gibson, MS). Hank informs me that this station has recently moved -- hence the QSL delay, and the above address is the most current one. Thanks, Hugh-ed.

KYU-Japan Time Standard, 8000 kHz. Full data special 50th anniversary QSL card, without verification signer. Station address: Communications Research Laboratory, 2,1 Nuku-Kitamachi 4-chome, Koganei-shi, Tokyo 184, Japan (Norman Anderson, New York, NY)

PIRATE
Voice of Bonito, 7413 kHz. Full data orange paper QSL, verified by Gary Daniels, and an unintelligible signature from "Bonito" (the family dog). Received in nine days for an English report and mint postage. Station address: P.O. Box 6527, Baltimore, MD 21219 (Tim Johnson, Galesburg, IL)

SHIP TRAFFIC
Orchid II-DZS1 (log and bulk carrier), 500 kHz. Full data prepared QSL card. Received in 46 days for an English utility report and return postage. Ship address: Perseus Shipping Company Ltd., Koyo Building 3rd floor, 10-17 Manamatsuchou, Minato-ku, Tokyo 105, Japan (Hank Holbrook, Dunkirk, MD)

Harfalk-LAKZ2 (bulk carrier), 156.65 MHz. Full data QSL card and photo of ship. Received in 26 days for an English utility report, and return postage. Ship address: Harfalk Shipping Management, P.O. Box 1374, Vika Oslo 1, Norway. (Hank Holbrook, Dunkirk, MD) This is Harfalk's 288th Norwegian ship QSLed and the first one he has heard in many years, as most are now on satellite.

Timbo-5MOP (turb electric tanker), 500 kHz. Full data letter. Received in 17 days for an English utility report, and return postage. Ship address: Rector Shipping Company, Inc., 132 Nassau Street Room 320, New York, NY 10038 (Hank Holbrook, Dunkirk, MD)

PHASSA-ELFDS, (tanker), 500 kHz. Full data letter. Received in 41 days for an English utility report and return postage. Ship address: M/T Phassa c/o Embirkos Shipping Agency Ltd., Commonwealth House, 1-19 New Oxford Street, London WC1A, United Kingdom (Hank Holbrook, Dunkirk, MD)

SWEDEN
Radio Sweden, 17880/15295 kHz. Full data scenery card, verified by Claude Stephenson. Received in 18/24 days for an English report. Station address: S-103 10, Stockholm, Sweden. (Tim Johnson, Galesburg, IL) (Nicholas Adams, Newark, NJ)

UNITED ARAB EMIRATES
Voice of the U.A.E., 13605 kHz. Full data QSL folder card, verified by Ahmed A. Shouly. Received in 65 days for an English report. Station address: Ministry of Information and Culture, Box 62, Abu Dhabi, U.A.E. (Randy Stewart, Springfield, MO)

UNITED STATES
WGCM-Gulfport, Ms-1240 AM. Full data letter, verified by Howard Yund. C.E. Also enclosed a station info sheet. Received in 18 days for an English AM report, and return postage. Station address: S-105 10, Gulfport, MS 33901 (Larry Van Horn, New Orleans, LA)

WYFR-Voice of Free China relay, 5950/21720 kHz. No data QSL card, program schedule, and souvenirs, without verification signer. Received in 23/25 days for an English report. Station address: P.O. Box 24-38, Taipei, Taiwan, Republic of China (Joseph Davis, Canton, MD) (Nicholas Adams, Newark, NJ)

VANUATU
Vila Aeradio, 6553 kHz USB. Full data prepared form card stamped with the airport seal, without verification signer. Received in 33 days for an English report, souvenir postcard and return postage. Station address: Vila Aeradio, Pacific Building, Port Vila, Vanuatu, Central Pacific (Rick Albright, Merced, CA)
H.F. Packet: Here to stay or is it glorified RTTY?

When packet radio was first introduced in the late 70s, many hams felt that it was just a glorified form of RTTY. Now that the IBM PCs and the IBM clones are becoming more popular in the ham shack, packet systems are becoming more sophisticated in the VHF bands. RBBS's Gateways and Digi-peaters are improving local area networks.

In spite of the many improvements, however, packet on shortwave (HF) is still less than adequate. Some HF packet channels are overcrowded and filled with a deluge of retransmits. Retries are retransmissions of packet data when errors are encountered by the receiving station. The problem is caused by several reasons.

First, packet radio is designed to detect when another station is sending data on the same channel. This doesn't always work because it is possible for two stations to send a packet at the same time. When they transmit the packet at precisely the same moment, the carrier detector in the terminal node controller (TNC) doesn't have time to respond. They will then interfere with each other causing "hits" or errors.

If both transmitting stations are connected to a far end receiving station, the receiving stations will send a request to repeat the packet. The repeated packet is then sent by the transmitting stations, but a delay, which is random, is set up in the TNC. This delay will cause one of the transmitting stations to wait a little longer and if all goes well, one of the packets will be successfully received.

This scenario works fine on VHF when the channel noise and fading is at a minimum. Unfortunately, popping noise and fading is a reality on shortwave. The probability of receiving the next packet error free is slim.

Second, frequency control is another problem. On VHF the tones are sent as an audio FSK signal and the channel frequency isn't a problem with an FM signal. HF, on the other hand, has a problem when the audio FSK signal is connected to an SSB transmitter. The audio tones as well as the transmitter's dial setting determine the transmit frequency.

Most hams use modern transceivers on HF. But some older rigs may have a problem transmitting on the same frequency as the receiver indicates. Older rigs are also plagued with frequency drift. There are some hams that use LSB and 1600/1800 Hz tones with their receivers set to 14.105, for example. Other hams are using 2110/2310 Hz tones with a dial setting of 14.101. They think they're 4 kHz apart but the frequencies actually overlap by 100 Hz.

I have tried on several occasions, when signals were 59+ (very strong), to connect to a bulletin board on 30 meters. Unfortunately, I had very little success. I was trying to download a file but I got disconnected. A packet station connects to another in the same way a telephone modem connects to an "On Line Bulletin Board." Instead of wires, a radio channel links the two stations together.

Using a Kantronics KAM, a Yaesu FT227 2 meter rig and a Kenwood TS-440 HF transceiver, I decided to operate a "Gateway" to 30 meters. A gateway is a feature that is available on a two port TNC like the Kantronics KAM. The HF radio connects to one port and the VHF rig to the other.

Both radios can be operated on either band from the computer or by another packet station via the gateway. I was able, for example, to connect to a station on HF and converse via the keyboard with a friend across town at the same time on VHF. The friend was also able to use my Gateway to connect to even another station on HF. Multiconnected are possible on packet because the TNC can "Switch Streams." It's almost like having several phone lines connected to your computer through several modems.

If you are a shortwave listener, you can copy packet radio using your M7000. But first you will need to make a few adjustments. The M7000 defaults to the Bell 103 standard using 300 baud packet (300 is used on HF). The tones are 1270 Hz for mark and 1070 Hz for the space tone.

Change the tones to 1600 Hz for mark and 1800 Hz for space using the RCA and RDA keys. These tones appear to be the standard for most TNCs operating on HF. Tune in the frequencies listed below using LSB mode. I found the frequencies may vary about 20 to 30 Hz on a given night.

There really isn't a band plan for packet radio but it appears that the spacing is 20 kHz. It also appears that the carrier frequency is every odd kHz starting at 3 kHz but my dial setting appears to be 50 Hz lower on all channels. My equipment isn't at fault because I checked calibration against WWV. When I tried to use the nearest kHz setting on 30 meters, a station connected to me and said I was 50 Hz too high. He did agree that everyone should move up 50 Hz but he never explained why they were too low.

NNN

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<th>Amateur HF Packet Frequencies (300 baud)</th>
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<tr>
<td>40 meters</td>
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<td>7,090.95 kHz</td>
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www.americanradiohistory.com
Squeezing the Golden Goose

Since the beginning of satellite delivered programming, it has been the dream of many a would-be Rupert Murdoch to corner the market on such delivery, sit back and collect the monthly checks from the consumers. The procedure is so easy it's almost scary.

How DBS works

Forget what you've read about antique definitions of Direct Broadcast Satellites. Whatever the ITU might have pronounced years ago is laughably irrelevant now. The fact is DBS is whatever it is now and right now it is a C-band service to Americans who have big clunky 10 foot antennas in their backyards.

To reach this audience you have only to lease the necessary number of transponders on any available satellite, secure programming (movies, sporting events and the like), find a workable encryption system to avoid unauthorized reception and start beaming away. What could be simpler?

Ghost of USCI

That's the question they asked back in 1983 at United Satellite Communications Inc. (USCI). USCI was the first attempt at DBS. Using a Ku-band delivery scheme and selling the hardware through Radio Shack stores, USCI sought to entice viewers with the obvious advantage of utilizing small three foot diameter reflectors to receive basic cable and premium movie programming.

Yet 18 months later the company was bankrupt and thousands of dish owners were without any service. What has changed in the last seven years to assure today's investors that the same fate won't await their money?

TVRO grows up

The biggest problem USCI faced was that it was charging for programming on Ku that C-band dish owners were getting for free. It's impossible to fight that kind of competition. Secondly, it was offering too little programming. By 1983 most cable systems were offering more than five channels of programming. Given the choice it was hard to convince consumers to pass up the variety on cable for the restricted programming on USCI. In essence, there was no value offered to the consumer.

Since then much has changed in the satellite TV industry. The advent of scrambling in January 1986 made it necessary for consumers to begin paying for programming that had been "free." The availability of dozens of new channels made the variety of satellite delivered TV more than a match for cable. The additional years brought an average of 25,000 new dish owners per month. The market base was expanding.

Feeding frenzy

Nor did this coming of age go unnoticed by those whose business it is to make money from such opportunities. Waiting in the wings for the situation to be certified was a veritable zoo of big time investors. The certification was issued by none other than Mr. Murdoch himself. Without waiting to ascertain if his Sky Channel in Britain would succeed and apparently in need of even more tax write-offs than your normal billionaire, Murdoch announced his U.S. version: Sky Cable.

Crawling out of the woodwork came all manner of consortia, conglomerates, partnerships and loose-knit allies. Within weeks news spread of as many as 11 DBS players ready to go lest they be left chomping on the dust of yet another Murdoch miracle.

The players

Following the tradition of all sports, here's a scorecard so you can see who's playing.

Sky Cable -- NBC, Hughes Communications, News Corp. Ltd. (Rupert Murdoch) and Cable Communications Systems, Corp.

USSB (United States Satellite Broadcasting) -- Hubbard Broadcasting, Pinway Corp., Cable TV pioneer Burt Harris, Nationwide Mutual Insurance and Nationwide Communications.

K-Prime Partners -- GE American Communications, TeleCommunications, Inc. (TCI), Cox Cable Communications and other MSOs (multi-system operators).

TVN -- formerly known as Touch Tone Video. AT&T and Uniden America, among others, have teamed up to get a head start on all the others. Some six or seven other entities have also indicated they will seek their fortunes in the DBS mines.

TVN advantage

Unhappily for the others TVN has quite an advantage in the run for the consumer's buck. With the help of AT&T, TVN has control of 11 channels on TelStar 303. Using channel 24 as the Barker channel (with the 6.20 MHz audio being used as the SBCA's Information Net) TVN hopes to entice dish owners to sign up for its service. Channel 13 is a running commercial for the Uniden receiver and other related gear while channel 20 is a color bar demonstration of the Leitch scrambling system. The other channels are promos for up-coming films which TVN has apparently been licensed to show.

Still, TVN remains deep in the woods. Trying to convince consumers who already own satellite systems and already subscribe to extensive program packages at less than the quoted TVN prices to shell out more for yet another descrambler is asking a lot. To ask these same consumers to pay $4 per movie for films that are available from video stores at half the price is asking too much.

In addition, TVN is having its own difficulties. As of this date they have yet to sign any of the cable basic programmers to their service. Industry rumors have them skirting financial problems.

So certain are all of these players in the success and huge profit margin just waiting for them that basic facts in numbers seem to be eluding them. The known TVRO universe is only 2.5 million. The start-up costs and operational costs of such a DBS venture are enormous. TVN must be banking on a huge increase in monthly dish installations to make a go of it. It appears to be the same bed of quicksand into which the investors at USCI fell some seven years ago. It's hard to believe that 18 months from now TVN will be the great TVRO success story.

TRANSPONDER NOTES

The Discovery Channel (G1-22) and The Nashville Network (G1-2) have scrambled full time.

CTI, the company which has been testing its CD-18 turned CD-30 audio service for over a year, has apparently been taken over by Jones Intercable. Jones, which has had its...
Galactic Radio services on S3-11 for some time, is now simulcasting its programming on the frequencies on which CD-30 were. It's interesting to see what happens to the competition when the big bucks start flying.

KBL Entertainment Network (S2,19) is VCII encrypted showing sports programming of Pittsburgh area.

Heil news: Bob Heil, K9EID, of Heil Sound says his new SCPC receiver is in production. Improvements over the older model are said to be an equalization circuit to improve the audio, stereo tuning and a mechanical counter for a frequency reference. Bob also says to look for an eight page supplement in this month's issue of Orbit magazine on TVRO related audio products and systems.

The American Home Satellite Association has a zoning information package to dish owners and dealers. For those who are struggling with zoning ordinances, this could be what you need. Cost is $40 to nonmembers and $25 for AHSA members. For more information write: AHSA, 16 Broadway, Valhalla, NY 10595 or call 800-321-2472.

Arianespace is scheduled to launch Hughes Communications, Inc.'s SBS-6 and Galaxy 4 satellites this month. This is an extremely important launch for the satellite programming services. Next month they plan to launch GE Americom's Satcom C1 and GSTAR 4. The future for satellite television for the next ten years may depend on a successful launch.

Action Pay-Per-View is the name for a new PPV movie service on S3,6. Encrypted via the VCII Plus it will remain unavailable to the home dish market until the Plus market reaches the 60,000 mark. Films on this service are said to be of the B variety with the accent on action. Curiously, according to the July 11, 1990, issue of Satellite Business News, Action President Rick Blume was in on the beginning of the USCI service.

Chuck Dawson, originator of the now defunct F.U.N. channel, a scrambled adult movie service, and founder of K-Sat (now C-Sat) the grassroots anti-scrambling radio service, has recently put his new International Breeders Network off the satellite while financial problems are worked out. Some guys just can't hold a steady job.

HDTB update

Next to the race for DBS supremacy is the race for acceptance of a High Definition Television (HDTV) standard. Two top players in this game are Zenith with its "Spectrum Compatible" system. Zenith defines HDTV as "improved picture resolution, essentially twice the horizontal and twice the vertical resolution achieved by the current U.S. TV broadcast system (NTSC), improved audio comparable in sound quality to an audio compact disc, and reduced picture noise."

Almost everyone else will add that improved aspect ratio (screen height to width) that will have the same dimensions as a film screen is also essential. The trick is to get all this and still fit the signal into the current standard 6 MHz wide TV channel bandwidth. This Zenith has done. And so has its biggest rival.

General Instrument Corporation's VideoCipher Division has recently received the go ahead from the FCC's Advisory Committee for testing an HDTV standard. GI's big difference is that it not only compresses the HDTV signal into the required 6 MHz but it also encrypts the signal along the way. Dubbed DigiCipher by the poets at GI, the company hopes to get the nod from the FCC for its HDTV standard.

Miles to go

Should you throw out all your old TV sets and rush out for the HDTV sets? Not yet. It turns out the FCC Advisory Committee won't even submit a report with recommendations until September 1992. Until then all manufacturers will have these projects on hold. I wouldn't anticipate any production sets out and in use before 1995.

In the meantime just imagine how many DBS services and new discoveries in HDTV technology will come along. My mind is boggled.

Incidentally, Zenith is also said to be working on what it calls a "flat tension mask" high-resolution color display.

Coming attractions

There is no end to the imagination of cable programmers. The following is a list of channels planned for the near future. I'm not making any of this up.

Golden American Network -- This is for the over 50 set. From the folks who brought you the Nostalgia Network. Look for it April 1991.

The SCI-FI Channel -- to be launched on the new Satcom C4 bird. No exact date.

In Court Television -- "Live coverage of today's most newsworthy courtroom trials, from political to criminal to environmental. Plus expert legal analysis and commentary." No exact date.

Talk TV Network (TTV) -- "All talk, all day, all live." OK

SportsSouth Network -- It's from Atlanta, it must be, you guessed it: Ted Turner.
Touring Tennessee

Welcome to Knoxville! What's on? Hank Williams would be proud if he listened to the radio in Knoxville. Sooner or later he would hear himself. Country music dominates the dials in these parts, but the variety of entertainment, talk, and news available is almost endless. Here is a comprehensive guide to everyone you'll hear broadcasting in eastern Tennessee.

FM Radio

Although Knoxville is clearly Country music, educational broadcasters clearly dominate the bottom of the dial. You'll find five of them here, two from the same organization. The Appalachian Educational Commission operates WHGG on 88.3. WLYV is a new station on 89.1 from Alcoa, a Knoxville suburb. Both WUTK and WOXT broadcast from The University of Tennessee at Knoxville. WUTK concentrates on progressive rock music on 90.3. Powerful WUOT broadcasts classical and jazz music with nearly 100,000 watts, and is affiliated with National Public Radio, American Public Radio and the BBC. Look for them on 91.9 FM. You'll also find WKCS, the voice of The Knox County School System on 91.1 MHz.

Over a dozen commercial FM stations try for a piece of the Knoxville advertising pie. If you love rock 'n' roll, and you want to hear the best hits of all time, tune to WCKS, 93.1, with classic rock from nearby Karns, Tennessee. The leader of soft rock is WEZK, Easy 97 FM, at 97.5 MHz. You'll find similar sounds on WKNF 94.3 from Oak Ridge and U-102, WMU on 102.1 MHz. Today's top rock hits give WOKI, 100.3, from Oak Ridge a really hot sound, and if you want some album cuts thrown in look for popular WIMZ on 103.5 and 1240 AM.

Although they might be on the air by Columbus Day, WTNZ in Clinton, on 95.3, is silent as we go to press. WGTG in Warrenton on 101.3 will probably be playing country tunes and the one watt translator station W252AQ on 98.3 is anybody's guess. Tune in and discover what's new. DXers beware: you think you've picked up Chattanooga on 106.1 FM, but you are actually receiving another one watt translator: W291AA. this one repeats The Moody Bible Institute's station, WMW, from almost 100 miles away.

The heart of Knoxville radio is country music, and you'll find it all over the dial. The new kid on the block is WGAP from Maryville on 95.7. You might think it's from Knoxville, but WNOX broadcasts from Jefferson City, 40 miles out of town. Their version of Country and Western originates from the studios of the Satellite Music Network in Chicago.

When they call it The Independent Voice of Knoxville, the staff of WIVK is not kidding. You find that almost one out of every two radios in Knoxville is tuned to 107.7 FM or its sister station on 990 AM daily, creating ratings as high as a 47 share. WIVK attracts the biggest percentage of listeners in any market nationwide.

Weekdays, experience the personality that has dominated Knoxville radio since 1953: Claude Tomlinson. His vocal characteristics of Lester Longmire and Old Man Shultz have made them household names to everyone who listens to WIVK. Jim Donavan joins Claude adding his zany humor to create the top-rated morning show in America.

On Columbus Day weekend, WIVK sponsors "River Feast" at the World's Fairgrounds - within walking distance of The Hyatt - including a stage show, a huge barbecue and all sorts of fun. WIVK is also home of The Volunteer Network: the official voice of University of Tennessee football and basketball games. Big Orange fans tune in from all over the state and beyond for play by play and expert commentary by former Volunteer greats Tim Priest and Bobby Scott. If one station represents Knoxville, it's got to be WIVK.

Tours at the Convention

During the Monitoring Times convention, the International Radio Club of America will sponsor a visit to WUOT-FM on the University of Tennessee campus with Jacqueline Jones as our hostess. Later, at 2 p.m. we'll journey to the studios of WIVK AM and FM. Promotions Director Steve Dallas will show us Knoxville's number one station. If you're a DXer, follow our convoy after dinner to Look Rock and witness an amazing DXpedition. Attendance is limited for the tours, so register early at the IRCA booth on the convention floor.

AM Radio

Finally, here's a quick look at the 22 stations on the original broadcasting band. Religious programming and gospel music is dominant, heard on 900 WWWW, 1490 WITA and Family Radio's WKNL 760. Also within reach are 1120 WCGM from Maryville, LaFollette's WWGR on 960 and a combination of religious and country music programming from WLLJ in Lenoir City, found on 730 kHz. Country music plays all day long on WSEV 930 Sevierville, 1380 WYSY Clinton and WGAP 1400 Maryville.

WHJM 1180 Knoxville and 1040 WOB serve up good old adult standards for your enjoyment. 850 is the news center from The University of Tennessee via WUTK-AM. Rock 'n' roll oldies are W291AA's area on 1340 and WMRE brings R&B oldies alive again. Contemporary light rock is WATO's forte on 1290 from Oak Ridge.

Probably the most interesting AM station in the Knoxville area is WTNW with studios in Farragut. They are courageously experimenting with New Age music, an ethereal sound for mood creation. Three stations are authorized but currently silent: Knoxville's WRJZ 620 and WEMG 1430, and WORI 1550 from Oak Ridge.

Don't Forget

When at the Mt. Convention, tune to 530 kHz in the Hyatt Regency Hotel. Direct from room 530, you'll hear the latest convention news, rare aircheck of exotic stations and other banter from Radio Newyork International's Al Weiner and other personalities. Perhaps you. Stop by and say "hello." Also remember that the latest weather reports from NOAA Weather Radio are available from WXK-46 on 162.475 MHz 24 hours a day with a strong one kilowatt signal. Now you know everything's on the air. Grab your radios and go for it.

Bits 'n' Pieces

I hope the near future you might read this in "Ask Bob": "I've been getting lots of popcorn no matter how I adjust my squint towards HS 601. I am well within its footprint and I know the DAC in my DAB receiver is working right. Do I need a stronger LNB?"

This futuristic tech talk is already being spoken in Canada, Europe and it's heading toward the United States. The Canadian Association of Broadcasters and the CBC have just concluded the first field tests of digital audio broadcasting in North America. A minibus rode the streets of Ottawa, Toronto, Montreal, and Vancouver as various groups of
people on board compared reception of conventional FM with a DAB transmission using the same frequencies usually set aside for UHF television channels 68 and 69.

The DAB transmissions consistently provided seamless reception with improved fidelity and dynamic range, while the FM signals suffered from fading and multipath familiar to everyone owning a car radio. Phasing out AM and FM in favor of DAB might be just a matter of time. DAB super radios could be in your hands as early as 1993. The Canadian tests were so impressive that many participants thought a CD player was hidden somewhere aboard the minibus. Over the air reception could never be that clean and quiet... until now.

Meanwhile, the United States Information Agency, managers of the Voice of America, have been researching the viability of a worldwide, satellite delivered DAB system to replace their AM, FM and shortwave broadcast network. The VOA, in conjunction with NASA, plans to test various systems of DAB using mobile, portable and home receivers next summer. Details have not been released to the public and their actions have been shrouded in secrecy. The government does not want to reveal the motivation behind their studies and their possible uses of digital transmissions.

The National Association of Broadcasters, representing America’s current AM, FM and TV broadcasters, have announced that they favor terrestrial DAB transmission systems that would encourage locally oriented programming instead of creating nationwide super channels.

Renting a car soon? National Car Rental is supplying radio guides for their customers in 24 individual cities across the USA. If you don’t want to accumulate lots of frequent flyer miles by visiting them all you can buy a complete set for $4.50. Write to: 1990 Buick Radioguide, P.O. Box 219, Ypsilanti, MI 48197.

Country music fans will love the Country Music Radiomap. A colorful 26 by 28 inch map shows over 2,500 full-time country music stations and would be a perfect addition to your glove compartment or suitcase. Send $4.50 to: RRN Inc., Fulfillment Center, 22 West 21st Street, New York, New York 10010-6904.

And if you want to listen to broadcast engineers from all over the country, tune into the Society of Broadcast Engineers Radio Chapter of the Air on the second Sunday of each month. The meeting comes to order on 14205 kHz at 0000 UTC.

Mailbag

Imagine having an FM radio that was completely immune from interference from powerful stations on nearby frequencies. You’ve always wanted to hear a terrific jazz broadcaster on 88.3, but you live right next to a local FM station on 88.5, and you can’t find a receiver to split them apart.

Now you can get the razor-sharp selectivity you’ve always wanted. Dan Cashin brought our attention to experiments being done by Bill Nienajadly and other members of The Worldwide TV-FM DX Association. By replacing the broadband crystal filters found in most FM receivers with similar devices that produce a much narrower bandwidth, you can hear absolutely everything that your antenna can grab. The entire modification can be done for less than $50 in most cases and it’s become the talk of every FM DXer and serious listener from coast to coast. For complete details send a SASE to WTFDA, P.O. Box 514, Buffalo, NY 14205-0514.

Ron Carruthers of Edinburgh, Scotland, writes that AM stereo is finally being tested in Britain. Radio Orwell on 1170 kHz near Ipswich is experimenting with the Motorola C-QUAM system using a 6 kHz audio bandwidth. If the results are pleasing, expect to see several independent local radio stations in stereo by year’s end.

New Station Grants

Here’s the latest additions to America’s broadcasters, courtesy of the M Street Journal: Florence, AL 96.1; Orland, CA 106.5; Shafter, CA 104.3; Thousand Oaks, CA 88.3; Graceville, FL 101.2; Haughton, LA 103.7; Belzoni, MS 92.9; Ash Grove, MO 104.1; Rochester, NY 105.9; Webster, NY 102.7; Rose Hill, NC 104.7; Meyersdale, PA 93.3; Belle Fourche, SD 95.9; Seymour, TN 96.3; Camas, WA 94.7; Golden-dale, WA 102.3; Clarksburg, WV 90.1 and Point Pleasant, WV 99.5. Welcome aboard.

For Sale

Let’s head down to San Antonio, Texas, for our first offer this month. A really nice small market FM is for sale for only $250,000 with liberal terms and a low down payment.

Also available is an AM/FM combination in the East Texas Piney Woods region for $900,000. Call 512-476-9457 for details.

Another fine pair are situated in Minnesota. A 1000 watt AM with a construction permit for a 6000 watt Class A FM are for sale including equipment for the FM building and 40 acres of adjoining land. This is quite a buy for $300,000.

Two stations for less than the price of one. A full-time AM station on 580 kHz combined with a Class A FM needs to change owners in a beautiful mountain area. 17 acres of land, a two-story building and a long track record with a positive cash flow makes this an attractive offer. The owner will even consider an airtime trade. The current asking price is $260,000 or a reasonable offer. Call Tray at 605-745-3797.

International Bandscan

Michael Checkland, the director-general of the BBC, has decided that 75 million pounds must be cut from the corporation’s yearly budget. The BBC’s famous Radio Orchestra will cease to exist in the near future as a result. Over 1700 employees have been let go, and local broadcasting teleproduction centers in Manchester, Leeds and Newcastle will be consolidated into a single facility to be known as BBC North. New BBC Radio 5 is now on the air with a broadcast day that is dominated by World Service programming.

Radio Free Europe is planning to use Radio Prague’s 900 kilowatt powerhouse on 1287 kHz for its broadcast stations in Eastern Europe. In the land of green, an Irish version of the FCC, known as the IRTC, is considering allocating up to eight community radio stations for the Dublin area. The stations will be funded by subscription, local sponsorships and fundraising activities, and will be restricted to between four and six hours of operation daily.

A new service in Sri Lanka will be called Radio Colombo International and will use Trans World Radio’s 400 kW transmitter in Puttalam on 882 kHz targeting an audience in India. Programming will be in English, Tamil and Sinhalese broadcast daily from 1030 to 1315 UTC. The Voice of Turkey is constructing five 500 kW transmitters and 49 new antennas to boost their external service broadcasts. The project should be completed by 1992.

Credits: Many thanks to Jacqueline Jones of WOIT, Steve Dallas of WIVK, and Jack Hogan of WEZK for their comprehensive information on the Knoxville broadcast scene. Also thanks to the M Street Journal, Broadcasting and Radio World magazines and the British DX Club for our overseas news. Readers Dan Cashin, Ron Carruthers, Alan Masyla, W. Earle Doan, Sheila Malbran, Harold Bower, Robert Thomas, John Carson, David Parsons and John Cassidy made this writing much easier. Until next month, see you in Knoxville and happy trails.

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Radio War in the Middle East:
Saddam Hussein's invasion of Kuwait has touched off a radio war the likes of which have not been seen since World War II. If you want to get Saddam's view on what this is all about, tune in Radio Baghdad's English language broadcast from 2000 to 2200 UTC on 13660. You just might hear something else - a Morse code jammer identifying as "ARRF" which declares, "Nuke Baghdad."

Radio Baghdad's usual English language announcer is the same one known to American forces as "Baghdad Benny." His propaganda transmissions have been aired on 11860 at 1000, 1600, and 2000 hours UTC. So far they have been difficult to receive in North America, but as the daylight hours shorten reception may improve.

Iraq's Arabic service, "The Voice of the Masses," should not be too difficult a target on 12025 when it signs on at 0200. However, in all probability you will also hear one of those notorious Middle Eastern bubble jammers and possibly Egypt's "Voice of the Arabs" service, which has been reported signing on at 0300.

A real DX challenge is an Iraqi clandestine aimed at Saudi Arabia. It appears to be broadcasting in Arabic 24 hours a day, but frequency choice and extremely effective jamming probably give you only a brief window around 2130 UTC. The station is Holy Mecca Radio. I did have a tentative log of this on 9730, but it has since shifted to 9720, where it has also been tentatively heard.

The CIA's Foreign Broadcast Information Service provides some very interesting insight on Holy Mecca broadcasts. Programs stress two points where Iraq believes its opponents are very vulnerable. Saudi Arabia has permitted large numbers of non-Muslims to come into its territory, thus threatening Islam's sacred shrines. The cities of Mecca and Medina are so holy that non-Muslims are not permitted to enter them. Iraq also has tried to turn this into a conflict between the "haves" and the "have nots." What backing it has received from the Arab world has largely been from the stateless Palestinians and from the poorer Arab countries such as Yemen.

Iraq does not vent all its wrath on Saudi Arabia. There is plenty left over for Egypt. You may hear its anti-Egyptian program, "Voice of Egypt of Arabism (Saut Misr Al-Urubah)," according to the BBC Monitoring Service on 12025, 15150, 15170, and 17720 from about 1830 to 2000 sign-off. But beware of bubble jammers, especially on 17720. I have found 15150 and 15170 provide the best reception of this.

Maggie on the Attack: Britain's Margaret Thatcher has been even more outspoken against Saddam Hussein than George Bush. Thus it is not surprising that she has committed both sea and land troops to the Saudi Penninsula and the Persian Gulf. As a result British Forces Broadcasting Service is making its first appearance on shortwave since the Falkland Islands conflict and only the second since World War II.

It was logged here on 13745 at 0200 sign on with a rather good signal. You might also check 15205, 17695, and 21735 at 0930, and 15185, 17695 and 21735 at 1300 UTC. At least some reports are being verified. They can be sent to Box 1234, London W2, England. BEBS programs are quite enjoyable and make for some pleasant listening.

Friend and Foe: The Arab world is divided in its view toward Saddam Hussein. In the domestic media much has been made of the support he has received in Jordan, which has a large Palestinian population. Tune in the English language service of Radio Damascus for a very different view. You can hear Syria in English on 12085 and 15095 from 2005 to 2105. These transmissions have been very outspoken in their condemnation of Iraq for its invasion and annexation of Kuwait. Syria has demanded that Iraq withdraw and has sent a small contingent of troops to Saudi Arabia.

The Syrians also sponsor an anti-Iraqi clandestine, Saut al-Iraq (Voice of Iraq), which you should be able to hear easily on 12085 at 0300 sign-on. There is a bubble jammer, but it is not a serious problem.

Although also threatened by Saddam Hussein, the United Arab Emirates have transmitted broadcasts remarkable for both their calmness and objectivity. Tune in the Voice of UAE from Dubai for an English newscast on 21065 at 1330. Want to know what weather conditions the American forces will encounter? The Voice of UAE normally includes a weather forecast for the Arabian peninsula.

Saddam's most solid support has come from the Palestinians, who may not always support his methods but see them as their only hope to unite the Arab world and enable them to gain a state of their own. In return, he has sought to cultivate their friendship. You can hear Iraq transmitting the PLO's Voice of Palestine program in Arabic on 9704 at 0330.

Ironically it is not Radio Baghdad but the Voice of the United Arab Emirates in Abu Dhabi which has most sought to present the Palestinian view to English-speaking audiences. In the past the station has distributed a book, Shalom Rings Hollow, by Ahmed A. Shoukri who is on staff there. It's not completely objective, but virtually nothing written about the Middle East is, and it does look at that part of the world with a perspective seldom presented in the United States. Copies might still be available by writing to P.O. Box 63, Abu Dhabi, United Arab Emirates.

As propagation conditions improve it might be possible to hear Iran's English program on 9022 at 1930. So far it has not been audible, and although Iran has been reported to be using English at other times and on other frequencies, it has not shown up here.

However, if you know even a little Spanish you may find Iran's Spanish language broadcast on 15084 around 0130 quite easy to hear and very revealing. Iran is not an Arab state but is a Muslim country. It did fight Iraq for eight years. Despite a recent peace settlement with Saddam, its radio transmissions make it quite clear the Iranians have little love for Iraq.

It is well worth keeping an ear tuned to Tehran. As long as Iran enforces the UN sanctions they will be effective. If it should stop, they would be almost impossible to enforce. Iran is probably the only state in the region strong enough to counterbalance Iraqi power, and Iraq killed over one million Iranians. Could an Iranian-American alliance emerge? Impossible, you say? Remember the old saying, "The enemy of my enemy is my friend." Stay tuned to Iran.
Egypt is supposedly providing the Kuwaiti government in exile with a two-hour daily block of time on shortwave. Unfortunately, we do not yet have information on languages or frequencies in use. We hope to have these in the near future. The Kuwaitis were reported to have an exile station on 540 kHz mediumwave but may have abandoned this effort when Iraq put a powerful transmitter on the same frequency.

On another note, you can trace the Egyptians and Iraqis trying to interfere with each other. Often where one shows up so will the other. Jammers may also join in. Frequencies to watch include 12025, 15050, 15170 and 17720, but there are numerous others. Iraq is said to have allotted up to 50 frequencies to harass Egypt and her allies. Something can turn up on these frequencies at almost any hour of the day or night.

My deepest appreciation goes to Terry Krueger, David Crawford, David Potter, Frank McGuire, Larry Miller, Havana Moon and Herb Gesell for providing some of the above information. Remember, things can change rapidly in this confrontation. What was there yesterday may not be today, but something new may have taken its place. Look around. Shortwave is an excellent little used tool for comprehending this tragedy.

Elsewhere: It looks as if unlicensed radio in Italy will go the way of Ireland. The Italian parliament has finally passed legislation which will force the licensing of all stations within two years. As in Ireland, no provision has been made for shortwave. Meanwhile you may still be able to catch The Voice of Europe on 7538.

John Goodlife writes from England to inform us that Radio Caroline is currently off 558 for maintenance and repairs. When it returns another frequency will probably have to be selected since the old 558 kHz is now occupied. John says there is a good possibility Caroline will return to shortwave eventually, but the frequency definitely will not be the old 6214.

Thanks to Alan Maysa and several others who alerted us to the new film "Pump Us the Volume." Its featured character operates a pirate radio station. We will call this one must seeing.

The Voice of Bono writes to tell us they have a regular service in the 41-meter band (7100 to 7300 kHz). Let us know if you hear them.

The "Sonic Irritations" program we recently brought to your attention is now aired on WMNF Tampa 88.5 MHz Wednesdays at 11 p.m. local time. If vacationing in the area, you dare not miss it.

Being heard quite well by several of us in Central Florida is pirate XERK on 7435. Reports go to P.O. Box 25302, Pittsburgh, PA 15242. A recent QSL received here claims the station is located near the Mexican border.

Steve from Manhattan and Herb Gesell let us know Judah Mansbach struck again. WFPR 91.9 MHz in Floral Park, New York, was closed by the FCC and the operator fined $1,500. We also note one station has returned to the air, but since the New York metropolitan area stations are publicity shy, we will not say which one.

Out in California Skip Harwood found Radio Anarchy on 7417 at 0410. He says things had been fairly quiet since the FCC raided the West Coast's Zodiac Radio.

In Connecticut Bob Thomas discovered a most peculiar numbers station. He came across it on 5930 at 0100. Bob says it started in Slovak and then switched to Spanish.

Bob also heard one of the few radio links Liberia has with the outside world during its bloody civil war. It's the 10 kW USB BOA feeder on 18515. You may come across this often with instrumental music to keep the frequency open, but some traffic may show up as well. A similar feeder to Liberia from the United States will be found on 20125.

Finally here are a few brief pirate logs and QSLs. In Michigan, Bill Lauterbach came across W2OT on 7402 at 0438. Connecticut's Jim Kalach got a nice log of Hope Radio International on 7400 at 0226. He found another station on 7400 claiming to be operated by Moon Beam Press, but it is not. Steve Rogovich and Pat Murphy, both in Virginia, got QSLs from CFBN, which says it broadcasts from Canada. Pat's collection has also been enlarged by mailings from Radio Exp and Fourth of July Radio. See you again next month.
Beacons Further Afield

Last Christmas, I went out to the Los Angeles area for a couple of weeks. In late June, I went to Ecuador and the Galapagos Islands for almost two weeks. In both instances, I took my Sony 2010 in order to do some DXing.

One of my fields of interest in radio are the marine coastal stations that broadcast in the various high frequency bands. What surprises me is that despite my rather far-flung travels, I can’t really say that I heard much that was different from when I ordinarily hear back home in Illinois. I may have heard them at a little different hour on a particular frequency band, but it was essentially the same coastals that I hear at home.

The same thing held true in the case of international broadcasters. Sure, I heard programs beamed to South America instead of programs beamed to North America, but overall, it was the same broadcasters I usually hear.

When you have this kind of experience a couple of times, the tendency might be to leave your radio at home on the next trip simply because it doesn’t offer much of anything different than you get at home. All changes, however, when you start listening to the low frequency beacons. Even a trip of a few hundred miles can introduce a whole new group of beacons that you never hear at home. You may still hear some beacons you hear at home, if the distance you travel is only a few hundred miles. Travel 1,000 miles or more and you open up a completely new set of beacons.

In California, I heard 32 new-to-me beacons. Most were from California, but there was one each from Arizona, Nevada and Idaho. I had heard one from California some years ago. This was the powerful consolan station SFI from San Francisco on 192. This beacon was shut down years back and has been dismantled for probably ten years. My one Idaho catch was a one-time only that happened four or five years ago. I had never logged a beacon from Arizona or Nevada.

The Ecuador experience was similar with 41 beacons logged from Ecuador, Colombia and even Peru, Brazil, Chile, Venezuela and Panama. Six of these had been logged at one time or another from my home location, but almost all of those were very lucky chances when they occurred. TAU had also been heard several years ago when it was on a different frequency.

Note the beacons labelled “ON/R”. These are located on remote islands such as Easter Island and the Galapagos group. They usually don’t operate the beacon unless a plane is on the way in and the beacon serves as a homing device. In the case of GLS/272, this beacon served the airport where I arrived from Ecuador. Knowing the time of arrival on a different day, I was able to log the beacon.

The other two were mostly a case of luck. I just happened to have the receiver on and tuned pass 280 at 6 o’clock in the morning when I heard “IPA” nice and clear. It was not there at that time on the two following days. SCR/300 was logged at a little after eight in the evening. I don’t know the schedule of flights to San Cristobal in the Galapagos. Just another case of realizing that you don’t get lucky unless you keep listening.

The last beacon doesn’t technically belong in the below 500 kHz section. Yet there is no other place that the beacons in the 1600-1800 kHz range seem to fit. Most of them seem to be moving down below 500 kHz with the others as the expansion of broadcast band frequencies nears. Actually, this was the only one heard despite the fact that a couple of dozen or more are still listed for South America. These may be inactive or preparing to move lower.
The first four digits of an entry are the program start time in UTC.

The time is followed by the station name, program name, and a brief summary of the program's content. Some listings may be followed by "See X 0000." The letter stands for a day of the week:

- S = Sunday
- M = Monday
- T = Tuesday
- W = Wednesday
- H = Thursday
- F = Friday
- A = Saturday

The four digits stand for a time in UTC. Listeners should check back to that date and time to find out more about that particular program.

- All days are in UTC. Remember that if you are listening in North American prime time, it is actually the next morning UTC.

For example, if you are listening to a program at 8:01 pm [EDT] on your Thursday night, that's equal to 0001 UTC and therefore Friday morning UTC.

* We suggest that you tune in to a program a few minutes before the schedule start time, as some stations have tentative schedules which may slightly vary. Consult the frequency section beginning on page 65 for the frequencies in use by that station at that time.

**newsline** is your guide to news broadcasts on the air. All broadcasts are daily unless otherwise noted by brackets enclosing the day codes. We invite listeners and stations to send program information to the program manager at the address above.
Katsumi Komeiji (center) heads the staff of Radio Japan's "This Week," a week-in-review program on local Saturdays.

Monday

Oct 1st, 8th, 15th, 22nd, 29th

0006 Christian Science Monitor (Asia): News Focus. In-depth news analyses, focusing on major international events.
0030 BBC: In Praise of God. A half-hour program of worship.
0101 BBC: Desert Island Discs. Celebrity castaways pick their eight must-have records.
0134 Christian Science Monitor (Asia): Letterbox. Staff members respond to listener letters.
0145 BBC: Musical Feature. Musical programming of a topical nature.
0215 BBC: Andy Kershaw's World of Music. Exotic and innovative music from the world over.
0230 BBC: Science in Action. The latest in scientific developments.
0330 BBC: Anything Goes. Sounds from the BBC archives as requested by listeners.
0430 BBC: Off the Shelf. A reading selected from the best of world literature.
0430 Radio New Zealand Intl: Mailbox or Travel Pacific. Tony King with listener letters and Arthur Cussen's radio news, or Susan Bickell on visiting the South Pacific.
0000 Radio Havana Cuba: Newsbreak [T-S]
0030 Radio Jamiathi, Libya: News
0030 Radio Moscow: World Service; News in Brief
0030 Radio Netherlands: News [T-S]
0030 Voice of America (Americas, East Asia): News (Special English) [T-S]
0030 Voice of America (East Asia): News (Special English) [M]
0045 Radio Berlin Intl: News
0045 Radio Korea (World news Service): News
0055 Spanish Foreign Radio: News Summary [S]
0055 KUSW: News [T-S]
0056 WRNO: ABC News [H, A]
0100 BBC: News Summary
0100 Christian Science Monitor: News
0100 Deutsche Welle: World News
0100 Koli Israel: News
0100 Radio Australia: World and Australian News
0100 Radio Canada Intl: News [S-M]
0100 Radio Havana Cuba: News [T-S]
0100 Radio Japan: News
0100 Radio Luxembourg: News
0100 Radio Moscow: News
0100 Radio New Zealand Intl: News [M-A]
0100 Russian Foreign Radio: News
0100 Voice of America: News
0100 Voice of Indonesia: News
0100 Voice of Greece: News [M-A]
0105 Spanish Foreign Radio: News Summary [S]
0110 Christian Science Monitor (Asia): News [M]
0115 Christian Science Monitor: News [T-F]
0130 Radio Australia: News
0130 Radio Budapest, News
0130 Radio Canada Intl: News
0130 Spanish Foreign Radio: News [T-S]
0130 Voice of Greece: News [M-A]
0155 KUSW: News [T-S]
0155 Voice of Indonesia: News
0155 WRNO: ABC News [H, A]
0200 BBC: World News
0200 Radio Australia: International Report
0200 Radio Berlin: News
0200 Deutsche Welle: World News
0200 Koli Israel: News
0200 Radio Canada Intl: News
0200 Radio Havana Cuba: News
0200 Radio Luxembourg: News
0200 Radio Moscow: News
0200 Radio New Zealand Intl: News [M-A]
0200 Radio Prague Intl: News
0200 Radio Yugoslavia: News
0200 Radiotelevisione Italiana: News

0445 BBC: Feature. Topical programming on various subjects.
0506 Christian Science Monitor: News Focus. See M 0006.
0510 Radio New Zealand Intl: Calling Tonga. Rudi Hill greets the island nation of Tonga.
0510 Rcuador Radio: News
0510 Radio Waveguides: See S 0750.
0540 BBC: Words of Faith. See S 0540.
0545 BBC: Recording of the Week. A personal choice from the latest classical music releases.
0552 Christian Science Monitor: News Focus. See M 0006.
0630 BBC: Feature. See S 1401.
0709 BBC: Twenty-Four Hours. See S 0509.
0710 Radio New Zealand Intl: Calling the Cook Islands. Rudi Hill greets the island nation of the Cook Islands.
0730 BBC: Feature. See S 0200.
0734 Christian Science Monitor: Letterbox. See M 0134.
1130 Christian Science Monitor: Theme. A month-long series on a particular classical music composer.
1134 Christian Science Monitor: Letterbox. See M 0134.
1215 BBC: Quiz. A topical game show.
1245 BBC: Sports Roundup. See S 1330.
1309 BBC: Twenty-Four Hours. See S 0509.

newsline

0000 BBC: Newsdesk
0005 Christian Science Monitor: News
0030 Biblical Israel: News
0034 Radio Australia: International Report
0035 Radio Beijing: News
0035 Radio Canada Intl: News [S-M]
0035 Radio Finland: Northern Report [T-A]
0035 Radio Havana Cuba: News [T-S]
0035 Radio Kiev: News
0035 Radio Korea: News
0035 Radio Luxembourg: News
0035 Radio Moscow: News
0035 Radio New Zealand Intl: News [M-A]
0035 Radio Prague Intl: News
0035 Radio Softly: News
0035 Spanish Foreign Radio: News
0035 Voice of America: News
0035 Waveguide: News
0035 Voice of Indonesia: News
0035 Voice of Greece: News [M-A]
0035 Spanish Foreign Radio: News Summary [S]
0035 KUSW: News [T-S]
0035 WRNO: ABC News [H, A]
0035 BBC: News Summary
0035 Christian Science Monitor: News
0035 Deutsche Welle: World News
0035 Kol Israel: News
0035 Radio Australia: World and Australian News
0035 Radio Canada Intl: News [S-M]
0035 Radio Havana Cuba: News [T-S]
0035 Radio Japan: News
0035 Radio Luxembourg: News
0035 Radio Moscow: News
0035 Radio New Zealand Intl: News [M-A]
0035 Radio Prague Intl: News
0035 Radio Yugoslavia: News
0035 Radiotelevisione Italiana: News
0035 Christian Science Monitor: News [T-F]
0035 Radio Budapest: News [T-S]
0035 Radio CDU: Latin American News
0035 Radio Havana Cuba: News [T-S]
FEATURED THIS MONTH: Check out Radio Japan's new program lineup in this month's program guide. Instituted earlier in the year, it features many brand-new programs. Radio New Zealand International debuts in the program guide this month; the information is compiled from BBC Monitoring, as well as monitoring of our own.

THOSE ZANY TANZANIANS: Radio Tanzania, broadcasting from Dar es Salaam, features programs from two groups fighting South Africa's apartheid system. "Voice of the Pan-Africanist Congress" can be heard on Mondays, Wednesdays, and Fridays at 0415 UTC and 1830 UTC, and on Tuesdays and Thursdays at 1815 UTC. Meanwhile, "Radio Freedom," the voice of Nelson Mandela's African National Congress, airs at the same times on other days of the week.

CH-CH-CHANGES: On September 29, many stations adjusted their schedules by one hour to compensate for the end (or start) of daylight savings time in their countries. For the first time, we've used a computerized system to make those adjustments. If you notice any errors, please let us know.

-- Kannon Shammugam 
Program Manager

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<th>Date</th>
<th>Time</th>
<th>Program</th>
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<tbody>
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<td>0200</td>
<td>Radio Moscow: News</td>
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<td>0200</td>
<td>Radio New Zealand Int'l: News</td>
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<td>0200</td>
<td>Radio Romania Int'l: News</td>
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<td>Radio BSA: News</td>
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<td>0200</td>
<td>Swiss Radio Int'l: News</td>
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<td>Voice of America: News</td>
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<td>0200</td>
<td>Voice of Free China: News and Commentary</td>
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<td>WWCR: USA Radio News (T-A)</td>
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<td>Radio Cairo: News</td>
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<td>Christian Science Monitor (T-F)</td>
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<td>0230</td>
<td>HCJB: Latin American News</td>
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<td>Radio Havana Cuba: Newsbreak [T-S]</td>
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<td>Radio Moscow (World Service): News in Brief</td>
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<td>Radio Pakistan: News (Special English)</td>
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<td>Radio Tirana, Albania: News</td>
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<td>Radio Berlin Int'l: News</td>
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<td>Radio for Peace Int'l: UN Radio News [T-A]</td>
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<td>Radio Korea (World News Service): News</td>
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<td>KUSW: News [T-S]</td>
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<td>BSC: World News</td>
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<td>Christian Science Monitor: News</td>
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<td>Voice of Free China: News and Commentary</td>
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<td>Radio Japan: News About Britain</td>
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<td>Radio Havana Cuba: Cuban Nat'l News [T-S]</td>
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<td>Radio Cairo: News</td>
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<td>Radio France Int'l: News</td>
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<td>Radio Havana Cuba: Newsbreak [T-S]</td>
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<td>Radiocanada: World News</td>
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<td>Radio Havana Cuba: Newsbreak [T-S]</td>
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<td>Radio Moscow (World Service): News in Brief</td>
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<td>Radio Tirana, Albania: News</td>
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<td>UAFE Radio, Dubai: News</td>
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<td>Radio Yerevan: News</td>
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<td>Radiotelevisione Italiana: News</td>
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<td>0355</td>
<td>Radio Japan: News [M-F]</td>
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<td>0400</td>
<td>BBC: Newsdesk</td>
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PROGRAM

0350 Radio Japan: Commentary. See M 0350.
0355 Radio Japan: Tokyo Pop-In. See M 0555.
0406 Christian Science Monitor: News Focus. See M 0056.
0430 BBC: Off the Shelf. See M 0430.
0434 Christian Science Monitor: Kaleidoscope. See M 1534.
0455 BBC: Book Choice. See S 0745.
0506 Christian Science Monitor: One Norway Street. See M 2306.
0509 BBC: Twenty-Four Hours. See S 0509.
0510 Radio New Zealand Int'l: Calling the Cook Islands. See M 0710.
0516 Radio Japan: Out and Around. See M 0516.

0530 Radio Japan: City Beat. See M 0530.
0534 Christian Science Monitor: Letterbox. See M 0134.
0537 Radio Japan: Japan Diary. See M 0537.
0540 BBC: Words of Faith. See S 0540.
0550 Radio Japan: Commentary. See M 0550.
0555 Radio Japan: Tokyo Pop-In. See M 0555.
0606 Christian Science Monitor: News Focus. See M 0066.
0610 Radio New Zealand Int'l: Checkpoint. See M 0610.
0630 BBC: Musical Feature. Musical programming of a topical nature.
0630 Radio New Zealand Int'l: Feature. See M 0630.
0634 Christian Science Monitor: Kaleidoscope. See M 1634.
0706 Christian Science Monitor: Commentary. One Norway Street. See M 2306.
0709 BBC: Twenty-Four Hours. See S 0509.
0710 Radio New Zealand Int'l: Calling Samoa. Rudi Hill greets the island nation of Samoa.
0716 Radio Japan: Out and Around. See M 0516.
0730 BBC: Europe's World. See T 045.
0730 Radio Japan: City Beat. See M 0530.
0734 Christian Science Monitor: Letterbox. See M 0134.
0737 Radio Japan: Japan Diary. See M 0537.
0745 BBC: Network UK. See T 0215.
0750 Radio Japan: Commentary. See M 0350.
1106 Christian Science Monitor: One Norway Street. See M 2306.
1115 BBC: Waveguide. See S 0750.
1120 Radio Japan: Asialwatch. See M 1120.
1124 Radio Japan: Round and About. See M 1124.
1125 BBC: Book Choice. See S 0745.
1130 BBC: Megamix. See T 0030.
1131 Radio Japan: City Beat. See M 0530.
1134 Christian Science Monitor: Letterbox. See M 0134.
1137 Radio Japan: Japan Diary. See M 0537.

THE CHRISTIAN SCIENCE MONITOR

World Service

March-June 1987

Program Guide

The Christian Science Monitor inaugurated its World Service in 1987, making its respected world news coverage available to a wider audience.

newsline cont'd from p.59

0455 KUSW: News [T-S]
0455 WYFR (Network): News [T-A]
0500 BBC: World News
0500 HCJB: Latin American News
0500 Kol Israel: News
0500 Radio Australia: World and Australian News
0500 Radio Beijing: News
0500 Radio Havana Cuba: News [T-S]
0500 Radio Japan: News
0500 Radio Moscow: News
0500 Radio New Zealand Int'l: News
0500 Spanish Foreign Radio: News
0500 Voice of America: News
0500 WWCR: USA Radio News [T-A]
0505 Radio New Zealand Int'l: News About NZ
0510 Radio Beijing: News About China
0515 Radio Canada Int'l: News [M-F]
0515 Radio Havana Cuba: Cuban Nat'l News [T-S]
0530 Radio Austria Int'l: News
0530 Radio Finland: Northern Report [T-A]
0530 Radio Havana Cuba: Newsbreak [T-S]
0530 Radio Korea: News
0530 Radio Moscow (World Service): News in Brief
0530 Radio Romania Int'l: News
0530 UAE Radio: Dubai: News
0530 Voice of Nigeria: News
0545 Voice of Nigeria: News About Nigeria
0551 Spanish Foreign Radio: news Summary [S]
0555 HCJB: World News
0555 KUSW: News [S, T-F]
0600 BBC: World News
0600 Christian Science Monitor: News
0630 Christian Science Monitor: World Report
0630 Radio Australia: International Report
0630 Radio Havana Cuba: News [T-S]
0630 Radio Moscow: News
0630 Radio Taiwan: News Int'l: News
0630 Voice of America: News
0635 Radio Prague Int'l: News
0645 Radio Berlin Int'l: News
0645 Radio Romanas Int'l: News
0645 Radio Russia Int'l: News
0655 KUSW: News [S, T-F]
0700 BBC: World News
0700 Christian Science Monitor: News
0700 Radio Australia: World and Australian News
0700 Radio Havana Cuba: News [T-S]
0700 Radio Japan: News
0700 Radio Moscow: News
0700 Radio New Zealand Int'l: News
0700 Radio Russian News: News
0700 Voice of Free China: News and Commentary
0705 Radio New Zealand Int'l: News About NZ
0715 Radio Havana Cuba: Cuban Nat'l News [T-S]
0730 BRT, Brussels: News [M-F]
0730 Christian Science Monitor: News [M-F]
0730 HCJB: Latin American News
0730 Radio Austria Int'l: News
0730 Radio Finland: Northern Report [T-A]
0730 Radio Havana Cuba: Newsbreak [T-S]
0730 Radio Moscow (World Service): News in Brief
0730 Radio Netherlands: News [M-A]
0730 Radio Radio Havana Cuba: News
0730 Radio Sofia: News
0730 Swiss Radio Int'l: News
0730 KUSW: News [S]
0755 Radio Japan: News [M-F]
0755 Radio Japan: News [M-F]

0206 Christian Science Monitor: News Focus. See M 0006.
0215 BBC: Health Matters. See M 1115.
0230 BBC: Musical Feature. See T 0530.
0234 Christian Science Monitor: Kaleidoscope. See M 1634.
0306 Christian Science Monitor: Curtain Call. See T 2306.
0315 BBC: The World Today. See M 1645.
0316 Radio Japan: Out and Around. See M 0516.
0322 Radio Japan: Asia Hotline. A look at the rapid changes in other Asian nations.
0330 BBC: Discovery. An in-depth look at scientific research.
0340 Radio Japan: City Beat. See M 0530.
0344 Christian Science Monitor: Letterbox. See M 0134.
0347 Radio Japan: Diary. See M 0537.
0349 Radio Japan: Japan Diary. See M 0537.
1000 BBC: News Summary.
0930 Christian Science Monitor: News [M-F].
0930 Radio Beijing: News.
0930 Radio Finland: Northern Report [T-A].
0930 Radio Korea: News.
1000 Radio New Zealand Intl: News [A].
Edward Ho is a writer and a program presenter of Chinese programs on KNLS.

newslines cont'd from p.61

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newslines cont'd from p.61

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0340 Radio Japan: Economy Update. Newly marketed products, consumer trends, and interviews.
0350 Radio Japan: Commentary. See M 0350.
0355 Radio Japan: Tokyo Pop-In. See M 0555.
0430 BBC: Off the Shelf. See M 0430.
0434 Christian Science Monitor: Kaleidoscope. See M 1634.
0445 BBC: Andy Kershaw's World of Music. See M 0215.
0506 Christian Science Monitor: One Norway Street. See M 2306.
0509 BBC: Twenty-Four Hours. See S 0509.
0510 Radio New Zealand Int'l: Calling Niue and Tokelau. See W 0710.
0516 Radio Japan: Out and Around. See M 0516.
0530 Radio Japan: City Beat. See M 0530.
0534 Christian Science Monitor: Letterbox. See M 0134.
0537 Radio Japan: Japan Diary. See M 0537.
0540 BBC: Words of Faith. See S 0540.
0540 Radio Japan: Economy Update. See H 0340.
0545 BBC: The World Today. See M 1645.
0550 Radio Japan: Commentary. See M 0550.
0606 Christian Science Monitor: News Focus. See M 0606.
0610 Radio New Zealand Int'l: Checkpoint. See M 0610.
0630 BBC: Feature. See W 1215.
0630 Radio New Zealand Int'l: Feature. See M 0630.
0634 Christian Science Monitor: Kaleidoscope. See M 1634.
0640 BBC: The Farming World. See W 1225.
0706 Christian Science Monitor: One Norway Street. See M 2306.
0709 BBC: Twenty-Four Hours. See S 0509.
0710 Radio New Zealand Int'l: Calling Fiji. Rudi Hill greets the island nation of Fiji.
0716 Radio Japan: Out and Around. See M 0516.
0730 BBC: Write On... Paddy Feeny reads listener letters.
0730 Radio Japan: City Beat. See M 0530.
0734 Christian Science Monitor: Letterbox. See M 0134.
0737 Radio Japan: Japan Diary. See M 0537.
### Program Guide

##### Friday

**Oct 5th, 12th, 19th, 26th**

| 0006 | Christian Science Monitor: News Focus. See M 0006 |
| 0030 | BBC: Musical Feature. Musical programming of a topical nature. |
| 0101 | BBC: Outlook. See M 1405. |

### Newsline cont'd from p.63

| 1830 | BRT, Brussels: News [M-F] |
| 1830 | Christian Science Monitor: News [M-F] |
| 1830 | Radio Canada Int'l: News [M-F] |
| 1830 | Radio Kuwait: News. |
| 1830 | Radio Moscow (World Service): News in Brief |
| 1830 | Radio Netherlands: News [M-A] |
| 1830 | Radio Polonia: News. |
| 1830 | Radio Prague Int'l: News |
| 1830 | Radio Tirana, Albania: News |
| 1830 | Swiss Radio Int'l: News |
| 1830 | Voice of America: News (Special English) |
| 1840 | Voice of Greece: News [M-A] |
| 1845 | Radio Berlin Int'l: News |
| 1850 | Radio Moscow (World Service): News in Brief |
| 1850 | KWSW: News [M-A] |
| 1900 | BBC: News Summary |
| 1900 | Christian Science Monitor: News [M-A] |
| 1900 | Deutsche Welle: World News |
| 1900 | HJCB: Latin American News |
| 1900 | KVOH: News [M-F] |
| 1900 | Radio Australia: World and Australian News |
| 1900 | Radio Beijing: News |
| 1900 | Radio Canada Int'l: News [M-F] |
| 1900 | Radio Havana Cuba: News [M-A] |
| 1900 | Radio Japan: News |
| 1900 | Radio Jupiter: News |
| 1900 | Radio World: News [M-A] |
| 1900 | Radio Japan: News |
The announcers of "Radio Japan Magazine Hour," the umbrella program for various Radio Japan features.

**Saturday**

**Oct 6th, 13th, 20th, 27th**

0300 BBC: From the Weeklies. A review of the weekly British press.
0405 BBC: Recording of the Week. See S 0545.
0101 BBC: Outlook. See S 1405.
0130 BBC: Feature. Topical programming on various subjects.
0145 BBC: Book Choice. See S 0745.
2100 BBC: Newshour.
2200 BRT, Brussels: News [M-F].
2200 Christian Science Monitor: News [M-A].
2200 Radio Canada Int'l (USA): News [A-S].
2200 Radio Finland: Northern Report [M-F].
2200 Radio Havana Cuba: News [M-A].
2200 Radio New Zealand Int'l: News [S-F].
2200 Radio Yugoslavia: News.
2200 Radiotelevisione Italiana: News.
2200 Voice of America: News.
2200 Voice of Free China: News and Commentary.
2208 Voice of America (Carib): Caribbean [M-F].
2225 Radio Havana Cuba: Cuban Nati [M-A].
2230 Christian Science Monitor: News [M-F].
2230 Kol Israel: News.
2230 Radio Havana Cuba: Newsbreak [M-A].
2230 Radio Polonia: News.
2230 Voice of America: News (Special English).
2230 WYFR (Network): News [M-F].
2235 KUSW: News [M-A].
2235 WWYF (Network): News [M-A].
2300 BBC: World News [A-S]: 5-Minute News [M-F].
2300 Christian Science Monitor: News [M-A].
2300 Radio Australia: World and Australian News.
2300 Radio Moscow: News.
2300 Radio New Zealand Int'l: News [S-F].
2300 Voice of America: News.
2300 Voice of Turkey: News.
2305 Radio Polonia: News.
2305 Radio Pyongyang: News.
When Americans head out on the open road, we appreciate how great America really is, and our freedom to travel. Now, more than ever in the past, people from the world over can visit America. Foreign visitors strengthen our global relations and in 1989, they added $43 billion* to our economy. As our number one export, tourism improves the USA's balance of trade with other nations.

Tourism Works For America... and for you.

*Preliminary 1989 Estimates. Source: U.S. Travel and Tourism Administration
The Frequency File

October 1990

Welcome to another month of frequency info, where the revolving-door mentality doesn't scare us. Especially at this time of the year, when there are not only time changes, but frequency changeovers as well. It'll all be over with by November, and until then, we'll continue to keep you as up-to-date as possible - always.

MONITORING TIMES - As Accurate as They Wanna Be

Moscow City Council to Radio Cigarettes

It's amazing how headlines jump out at you on shortwave. The above headline recently stuck out in a report on Radio Moscow. During those periods when geomagnetic storms wreak all types of mischief on your listening habits, powerhouses like Radio Moscow still manage to get through.

If you're primarily a DX'er, I hope you keep the opportunity (?) of the sometimes stale summer months to listen in on programming such as this.

If It's Late Nite, It Must Be David Letterman

Well, not exactly. But there are strange things out there in the wee hours. From Africa to the Pacific and beyond, your early morning hours offer you prime DX - and some pretty good programming as well.

Reader Survey: Send in Your Comments

It has been a very contradictory year in the world, and this is reflected on shortwave as well. Some stations have left us, others have signed on or plan to sign on. What do you think was the major event on shortwave this year? Was it Radio Baghdad's special broadcasts for American troops in the Arabian desert? (We list those broadcasts, by the way, purely for your information and not by any means to support propaganda.)

Or was it Radio RSA's decision to terminate all of its shortwave broadcasts targeted beyond Africa? Or does it have something to do with events in pirate radio (you will note that, due to the nature of these birds, we don't list them here - check out Outer Limits elsewhere in this magazine for that info).

Whatever you think that event was, write it on a postcard and send it to me at the address at the beginning of this section. I'll tally your responses and report them to you in the December issue.

You Can Take It With You

One of my clients came into the office the other day and told me he was shipping out to the Persian Gulf. He's a reservist, and ready for the mission. I know you are supporting these men and women as we all are. Why not let them in on the benefits of taking a shortwave radio with them? I know if I was stuck in a desert, I'd feel a little closer to home if I heard KUSW or the Christian Science Monitor. So, tell a friend about shortwave.

See ya next month. Until then, take care. And don't listen to too many Radio Baghdad programmes entitled "Documents Show that Kuwait Was Always A Part of Kuwait."

-- Greg Jordan, Frequency Manager

MONITORING TIMES October 1990
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<td>Radio Japan General Svc, Tokyo</td>
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<td>Spanish National Radio, Madrid</td>
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**How to Use the Propagation Charts**

Propagation charts can be an invaluable aid to the DXer in determining which frequencies are likely to be open at a given time. To use the propagation charts, choose those for your location (they are divided into east coast, midwest and west coast of North America). Then look for the one most closely describing the geographic location of the station you want to hear.

Once you've located the correct charts, look along the horizontal axis of the graph for the time that you are listening. The top line of the graph shows the Maximum Useable Frequency [MUF] and the lower line the Lowest Useable Frequency [LUF] as indicated on the vertical axis of the graph.

While there are exceptions to every rule (especially those regarding shortwave listening), you should find the charts helpful in determining the best times to listen for particular regions of the world. Good luck!
Are You Ready for Fall DX SEASON?!

We're rootin' for ya, but you gotta stay tuned in to get the best tips and articles on your monitoring hobby. Moving? Send us your address change in time to keep your MT coming. Subscription current? Check your label to see your date of expiration. Says William Kiely of County Cork, Ireland, "I think your magazine is the best that I have ever read. (I write the Utility column for the Irish Radio Transmitters Society's magazine) ... MT covers all the spectrum of radio that I am interested in." If you feel that way, too, make sure you're getting the inside scoop this fall!

Stay glued to Monitoring Times and be a Winner!

East Coast To Western Europe

East Coast To Eastern Europe

East Coast To Arctic Europe

East Coast Monitoring Times

October 1990
0300-0350 Deutsche Welle, Koin, West Germany 6085 6120 9545 15205
11810
0300-0355 Radio Beijing, China 9690 11555 11715 15100
0300-0400 A.S Radio New Zealand 17675
0300-0400 T-A Radio Canada International, Montreal 9535 9755 11845 11940 13720
0300-0400 BBC World Service, London, England 5975 6005 6175 6195 7135 7325 9410 9600 8915 11750 12095 15220 15260 15420 17705 21715
0300-0400 CBC, Northern Quebec Service, Can 9625 (ML)
0300-0400 Radio Moscow North American Svc 9635 12050 13605 15180 15425 15455 15530 15580 15595 15600
0300-0400 Radio Moscow World Service 7305 11615 11630 11675 11775 11960 11980 11995 12030 15140 15170 15230 15280 15315 15320 15415 15430 15440 15450 15470 15480 15490 15500 15515 15520 15540 15550 15560 15580 15595 15600 17795 17800 17820 17830 17850 17860 17880 17890 21655 21690 21740 21790 21825 21880 25780
0300-0400 CBM, St. John’s, Newfoundland, Can 6160
0300-0400 CBU, Vancouver, British Columbia 6160
0300-0400 CFCF, Montreal, Quebec, Canada 6005
0300-0400 CFCH, Calgary, Alberta, Canada 6030
0300-0400 CHNS, Halifax, Nova Scotia, Canada 6110
0300-0400 Christian Science World Svc, Boston 9455 9850 13760
0300-0400 CKWX, Vancouver, British Columbia 6080
0300-0400 CFRB, Toronto, Ontario, Canada 6070
0300-0400 Faro del Caribe, San Jose, Costa Rica 5065 9645
0300-0400 HGU, Quito, Ecuador 17875 15155
0300-0400 Radio Cultural, Guatemala 3300
0300-0400 Radio Havana Cuba 9710 11820
0300-0400 Trans World Radio, Bonaire 9535 11930
0300-0400 Voice of America-Africa Service 6035 7170 7280 9525 9575 11835 9580 7445 9680 9765 11745 15345
0300-0400 Voice of Free China, Taiwan 7835 7445 9680 9765
0300-0400 WHRI, Noblesville, Indiana 7315 9495
0300-0400 WRNO WorldWide, Louisiana 6185
0300-0400 WWCR, Nashville, Tennessee 7520
0300-0400 WYFR, Okeechobee, Florida 5065 9505 15440
0310-0325 Vatican Radio, Vatican City 11725
0315-0330 Radio for Peace Intl, Costa Rica 7375 USB
0315-0345 Radio France International, Paris 3965 5990 7135 7280

0400-0440 Radio Australia, Melbourne 6160
11820 11945 15380 15480
0400-0450 A.S Radio New Zealand, Wellington 17675
0400-0450 Radio Australia, Melbourne 11880 15160 15240 15320 15465 15560 17795 21525
21740 21775
0400-0450 Voice of America-Africa Service 7825 7160 9765 9525 9575 11835 9580 7445 9680 9765
0400-0500 Radio Moscow North American Svc 9635 11855 12035 12085 12095 15435 15480
17875 17880 25780
0400-0500 Voice of America-Africa Service 7825 7160 9765 9525 9575 11835 9580 7445 9680 9765
0400-0500 Radio Moscow North American Svc 9635 11855 12035 12085 12095 15435 15480
0400-0500 Voice of America-Africa Service 7825 7160 9765 9525 9575 11835 9580 7445 9680 9765
0400-0500 Radio Moscow North American Svc 9635 11855 12035 12085 12095 15435 15480
0400-0500 Voice of America-Africa Service 7825 7160 9765 9525 9575 11835 9580 7445 9680 9765
0400-0500 Radio Moscow North American Svc 9635 11855 12035 12085 12095 15435 15480
0400-0500 Voice of America-Africa Service 7825 7160 9765 9525 9575 11835 9580 7445 9680 9765
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0400-0500 Voice of America-Africa Service 7825 7160 9765 9525 9575 11835 9580 7445 9680 9765
0400-0500 Radio Moscow North American Svc 9635 11855 12035 12085 12095 15435 15480
0400-0500 Voice of America-Africa Service 7825 7160 9765 9525 9575 11835 9580 7445 9680 9765
0400-0500 Radio Moscow North American Svc 9635 11855 12035 12085 12095 15435 15480
0400-0500 Voice of America-Africa Service 7825 7160 9765 9525 9575 11835 9580 7445 9680 9765

October 1990

www.americanradiohistory.com
### Frequency Section

<table>
<thead>
<tr>
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<th>Frequency (MHz)</th>
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<td>Voice of Turkey, Ankara</td>
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<td>Radio Moscow World Service</td>
<td>11615 11630 11775 11780</td>
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<tr>
<td>0400-0500</td>
<td>Radio RSA, Johannesburg</td>
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**NOTE:** Radio RSA has started an early-morning transmission for Africa, the first in this time slot since they abandoned all non-Africa targets on May 1, 1990. This may be an opportunity, given optimum conditions, to once again sit in on what's going on or not going on—under the Southern Cross. Former Radio RSA listeners will recognize those last four words as a pun! (Under the Southern Cross was a popular RSA programme)

<table>
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### Monitoring Times

**0500 UTC [1:00 AM EDT/10:00 PM PDT]**

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<td>Vatican Radio</td>
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**East Coast To Central Africa**

- **MUF**
- **LUF**

**East Coast To East Africa**

- **MUF**
- **LUF**

**East Coast To Indian Ocean**

- **MUF**
- **LUF**

**Monitoring Times**

October 1990
0600 UTC [2:00 AM EDT/11:00 PM PDT]

0610-0615 Sierra Leone Broadcasting Soc., Freetown 3316
0600-0630 S Radio Norway International, Oslo 15165
0600-0645 Radio for Peace Int., Costa Rica 7375 USB
0600-0650 Deutsche Welle, Cologne, W. Germany 11765 13790 15185 17875
0600-0650 CBU, Vancouver, British Columbia 6160
0600-0700 Radio Pyongyang, North Korea 15180 13650
0600-0700 Radio Australia, Melbourne 11660 13700 13705 15240
0600-0700 WYFR, Okeechobee, Florida 5965 6065 7355 13760
0600-0700 SIBC Solomon Islands 9545 5020
0600-0700 A-H Radio New Zealand, Wellington 17675
0600-0700 ABC Domestic Network, Australia 15425
0600-0700 S-F WM/LK Bethel, Pennsylvania 9465
0600-0700 CFRC, Calgary, Alberta, Canada 6030
0600-0700 CHNS, Halifax, Nova Scotia, Canada 6130

0600-0700 Christian Science World Svc., Boston 9455 9840 11980 17780
0600-0700 CKWX, Vancouver, British Columbia 6080
0600-0700 CFRB, Toronto, Ontario, Canada 6070
0600-0700 Radio Moscow North American Svc. 9635 12050 13095 15180
0600-0700 Radio Moscow World Service 15425 15530 15595 17605
0600-0700 Voice of the Mediterranean, Malta 9765
0600-0700 HCJB, Quito, Ecuador 15155 17875
0600-0700 Radio Jordan, Amman 13655
0600-0700 ABC Brisbane, Australia 9660
0600-0700 Radio Tonga, Kingdom of Tonga 5030v
0600-0700 Voice of America-Africa Service 3990 6035 6080 6125
0600-0700 Voice of America-Middle East Serv 3980 5965 5995 6060
0600-0700 Radio Havana Cuba 9750
0600-0700 Voice of Hope, Lebanon 6280
0600-0700 Voice of Malaysia, Kuala Lumpur 6175 9750 15295
0600-0700 Radio Korea, Seoul 7275
0600-0700 Radio Finland, Helsinki 11575 9560 6120
0600-0700 Vatican Radio African Service 17710 17730 21650
0600-0700 BRT. Brussels, Belgium 13675 11695
0600-0700 Radio Tirana, Albania 9500 7205
0600-0700 Radio Polonia, Warsaw, Poland 6135 7270 15120 9675
0600-0700 Swiss Radio International, Berne 15430 17570 21770
0600-0700 A Radio for Peace Int., Costa Rica 7375 USB
0600-0700 Radio Berlin Intl's, GDR > Three 9760 13968 13990 15445
0600-0700 Radio Berlin Intl's, GDR > different 11970 21450
0600-0700 Radio Berlin Intl's, GDR > programs! 5965 6115 7185
0600-0700 M-F Radio Canada International, Montreal 6050 6150 7295 9750
0600-0700 GEC Radio, Accra, Ghana 11775 17840
0600-0700 West African Service, Accra 8130
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<td>11835</td>
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<td>15340</td>
<td>Radio Pyongyang, North Korea</td>
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<td>Voice of Free China, Taiwan</td>
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**East Coast To Far East**

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<td>6070</td>
<td>CFRB, Toronto, Ontario, Canada</td>
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<td>6130</td>
<td>CBC Radio, Accra, Ghana</td>
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<td>0800-0800</td>
<td>9640</td>
<td>Voice of Islam, Dacca, Bangladesh</td>
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<td>0800-0800</td>
<td>15195</td>
<td>Vatican Radio, Vatican City</td>
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<tr>
<td>0800-0800</td>
<td>17840</td>
<td>Radio Prague INT'L, Czechoslovakia</td>
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<td>0800-0800</td>
<td>9455</td>
<td>Voice of Hope, Lebanon</td>
</tr>
<tr>
<td>0800-0800</td>
<td>11880</td>
<td>Radio Pakistan</td>
</tr>
<tr>
<td>0800-0800</td>
<td>11925</td>
<td>Radio Networks INT'L, Hilversum</td>
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<td>0800-0800</td>
<td>13700</td>
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<td>15195</td>
<td>Radio Australia, Melbourne</td>
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<td>0800-0800</td>
<td>9560</td>
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**East Coast To Australia**

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<td>Voice of Hope, Lebanon</td>
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## Frequency Section

### Monitoring Times

**October 1990**

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<td>ABC, Tennant Creek, Australia</td>
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<td>0900-1000</td>
<td>S Adventist World Radio, Portugal</td>
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<td>0900-1000</td>
<td>A Radio for Peace Intl., Costa Rica</td>
<td>25780</td>
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<td>KTWR, Agana, Guam</td>
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<td>Radio Australia, Melbourne</td>
<td>5985</td>
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<td>0900-1000</td>
<td>A.S. Radio New Zealand, Wellington</td>
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<td>S Radio Bhutan, Thimpu</td>
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<td>CKWX, Vancouver, British Columbia</td>
<td>13760</td>
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<td>CFBR, Toronto, Ontario, Canada</td>
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<td>FEBC Radio Intl', Philippines</td>
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<td>Radio Japan General Service, Tokyo</td>
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<td>Radio Jordan, Amman</td>
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<td>WHRI, Noblesville, Indiana</td>
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<td>M.W.H.A.S Radio Ulan Bator, Mongolia</td>
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<td>ABC, Perth, Australia</td>
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<td>Radio Afghanistan, Kabul</td>
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### Monitoring Times

#### Eastern Time

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<th>Frequency (MHz)</th>
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<td>Radio Australia, Melbourne</td>
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<td>ABC, Alice Springs, Australia</td>
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<td>Radio Baghdad, Iraq</td>
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#### Western Time

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### Frequency Chart

**East Coast To Alaska**

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**Midwest To Western Europe**

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**Midwest To Eastern Europe**

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<td>1800-2400</td>
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**NOTE:** The above broadcast is intended for joint US-Arab troops in Saudi Arabia and the Gulf area, and is subject to change due to situational constraints.

**ABC, Australian Broadcasting Corp.**

---

**NOTE:** Change due to situational constraints.

**www.americanradiohistory.com**
frequency section

1030-1100 Radio Austria Int'l, Vienna 15450 21490
1030-1100 Radio Korea, Seoul 11715
1030-1100 Radio Netherlands Int'l, Hilversum 6020 11890
1030-1100 Radio Australia, Melbourne 5995 9580 9655 11750
1030-1100 Adventist World Radio, Forli, Italy 7230
1030-1105 Radio Budapest, Hungary 15160 15220 11925 9835
1040-1050 Voice of Greece, Athens 15625 17535
1045-1100 Radio Berlin Int'l, GDR 6115
1045-1100 Radio Budapest, Hungary 7220 9585 9835 11910
1050-1100 Radio Finland, Helsinki 15400 21550

1100-1200 CBC, Montreal 6160
1100-1200 SBC, Singapore 11940
1100-1200 ABC, Brisbane, Australia 9660
1100-1200 ABC, Katherine, Australia 2485
1100-1200 ABC, Perth, Australia 9610
1100-1200 ABC, Tennant Creek, Australia 2325 (ML)
1100-1200 Trans World Radio, Bonaire 11815 15345
1100-1200 CBS, St. John's, Newfoundland, Can 6160
1100-1200 CFCF, Montreal, Quebec, Canada 6065
1100-1200 CFCN, Calgary, Alberta, Canada 6065
1100-1200 CHNS, Halifax, Nova Scotia, Canada 6130
1100-1200 Christian Science World Serv, Boston 9455 9495 9530 15115
1100-1200 CKWX, Vancouver, British Columbia 6080
1100-1200 CFBR, Toronto, Ontario, Canada 6070
1100-1200 Radio Japan, Tokyo 6120 11815 11840
1100-1200 Radio Jordan, Amman 13555
1100-1200 Radio RSA, Johannesburg 9555 11805 11900 17835
1100-1200 Voice of America-Caribbean Service 9500 11915
1100-1200 Voice of America-East Asia Service 5985 6110 9760 11720
1115-1145 Radio Nepal,Katmandu(External Serv) 5046
1115-1145 Vatican Radio, Vatican City 17840 21485
1300-1345 RRI Yogyakarta,Yogyakarta,Indonesia 5046
1300-1345 Radio Budapest, Hungary 15190 6110 9835 15160
1300-1345 HCJB, Quito, Ecuador 11740 17990
1300-1345 Radio Australia, Melbourne 5995 6020 6035 6080
1300-1345 6580 9710 11910 15485
1300-1345 Radio Thailand 11905 9655 4830
1300-1345 Radio Austria International, Vienna 6155 13730 15430 21490
1300-1345 Radio Netherlands Int'l, Hilversum 5995 9610
1300-1345 9715 17835 17850 21495 21520 21545
1300-1345 All India Radio, New Delhi 6055 7110 9610 9675
1300-1345 11620 11680 15300

NOTE: The above broadcast is intended for joint US-Arab troops in Saudi Arabia and the Gulf area, and is subject to change due to situational constraints.

1100-1200 WHRL, Noblesville, Indiana 9465 11790
1100-1200 WYFR, Okeechobee, Florida 5950 11580
1100-1200 Adventist World Radio, Costa Rica 9725 11870
1100-1200 Radio Moscow World Service 11685 11850 12030 15060
1100-1200 15110 15130 15140 15155
1100-1200 15210 15305 15320 15375
1100-1200 15520 15540 15550 15585

NOTE: Non-governmental shortwave broadcasts from ITALY (AWR Fori, Italy; IRRS Milan) are subject to unannounced cessation due to pending legislation in the Italian parliament.

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1100-1200 WHRL, Noblesville, Indiana 9465 11790
1100-1200 WYFR, Okeechobee, Florida 5950 11580
1100-1200 Adventist World Radio, Costa Rica 9725 11870
1100-1200 Radio Moscow World Service 11685 11850 12030 15060
1100-1200 15110 15130 15140 15155
1100-1200 15210 15305 15320 15375
1100-1200 15520 15540 15550 15585

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MONITORING TIMES

MW (MUF) LUF

October 1990

www.americanradiohistory.com
### 1200 UTC [8:00 AM EDT/5:00 AM PDT]

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<tr>
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<td>21480</td>
<td>Voice of Islamic Republic of Iran</td>
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<td>9575</td>
<td>M-F Radio Finland, Helsinki</td>
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<td>15380</td>
<td>Radio Romania Int'l, Bucharest</td>
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<td>9655</td>
<td>Radio Thailand</td>
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<td>11850</td>
<td>Radio Ulam Bator, Mongolia</td>
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<td>15185</td>
<td>S Radio Norway International, Oslo</td>
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<td>7325</td>
<td>Radio Tashkent, Uzbekistan</td>
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<td>ABC, Alice Springs, Australia</td>
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<td>WWCR Nashville, Tennessee</td>
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<td>9660</td>
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<td>ABC Singapore</td>
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<td>ABC, Katherine, Australia</td>
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<td>11815</td>
<td>Trans World Radio, Bonaire</td>
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<td>ABC, Tennant Creek, Australia</td>
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### Monitoring Times

**October 1990**

**Midwest To South Africa**

**Midwest To Central Africa**

**Midwest To East Africa**

**Midwest**

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www.americanradiohistory.com
### Frequency Section

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<td>CFCF, Montreal, Quebec, Canada</td>
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**MONITORING TIMES**

**1400 UTC [10:00 AM EDT/7:00 AM PDT]**

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**Midwest To**

- **Indian Ocean**
- **Central Asia**
- **South East Asia**
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**MONITORING TIMES**

**October 1990**

9900 MHz.

0.00 MHz.

50.00 MHz.
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<tbody>
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<td>1515-1530</td>
<td>RCI European News Svc, Montreal</td>
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<tr>
<td>1530-1540</td>
<td>M-A Voice of Greece, Athens</td>
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<td>1530-1600</td>
<td>Radio Tirana, Albania</td>
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<td>1530-1600</td>
<td>Radio Omdurman, Sudan</td>
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**1600 UTC [12:00 PM EDT/9:00 AM PDT]**

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**NOTE:** The broadcast shown above is intended for joint US-Arab troops in Saudi Arabia and the Gulf area, and is subject to change due to situational constraints.

**Midwest To Pacific**

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**Midwest To South America**

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**Midwest To Central America**

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<tr>
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**1700 UTC [1:00 PM EDT/10:00 AM PDT]**

- **1700-1725** Radio Netherlands, Hilversum 15570 6020
- **1700-1730** Radio Sweden, Stockholm 6065 9615
- **1700-1730** Radio Berlin Int'l, GDR 6060 7260 7295 9730
- **1700-1730** Radio Berlin Int'l, GDR 13690 15350 17780
- **1700-1730 S** Radio Norway 25730 17765
- **1700-1750** Radio Iran, Irani 15265
- **1700-1800** ELWA, Monrovia, Liberia 11800
- **1700-1800** Radio Beijing, China 9797 11575 15225
- **1700-1800** Radio Australia, Melbourne 5995 6020 6035 6080
- **1700-1800** Radio Berlin
- **1700-1800** Radio Netherlands, Hilversum 15570 6020
- **1700-1800** Radio Baghdad, Iraq (via Brazil) 11860
- **1700-1800** Radio Baghdad, Iraq 11860 13695 15440 17775
- **1700-1800** CBC, Montreal 9625 (ML)
- **1700-1800** WHRI, Noblesville, Indiana 13760 15105
- **1700-1800** Radio RSA, Johannesburg 7230 15270 17790
- **1700-1800** Christian Science World Service 9530 13625 15365 21640
- **1700-1800** Radiol Baghdad, Iraq 11800

**NOTE:** The broadcast shown above is intended for joint US-Arab troops in Saudi Arabia and the Gulf area, and is subject to charge due to situational constraints.

- **1700-1800** Radio Moscow World Service 11690 11745 11775 11850
- **1700-1800** Radio Moscow World Service 11900 15240 15330 15915
- **1700-1800** WHRI, Noblesville, Indiana 13760 15105
- **1700-1800** WHRI, Noblesville, Indiana 13760 15105
- **1700-1800** WHRI, Noblesville, Indiana 15265 15540 17565 17570
- **1700-1800** Radio Russia, Beirut 21630 21755
- **1700-1800** CBC, Montreal 9625 (ML)
- **1700-1800** Radio Japan, Tokyo 9465
- **1700-1800** Radio Japan, Tokyo 9465
- **1700-1800** Radio Pyongyang, North Korea 9325 9640 9977 11760
- **1700-1800** KUSW Salt Lake City, Utah 15550
- **1700-1800** WINB, Red Lion, Pennsylvania 15225
- **1700-1800** WRNO, New Orleans, Louisiana 15420
- **1700-1800** WWCR, Nashville, Tennessee 15660
- **1700-1800** WYFR, Okeechobee, Florida 11630 13665 15440 17750 17865 21500

**1800 UTC [2:00 PM EDT/1:00 AM PDT]**

- **1800-1815** Kol Israel 11585 11655
- **1800-1830** S Radio Norway International, Oslo 21730
- **1800-1830** Voice of Ethiopia, Addis Ababa 9560
- **1800-1830** Voice of Nigeria, Nigerian 6065 7265
- **1800-1830** Voice of Vietnam, Hanoi 15010 12010 9840
- **1800-1845** Trans World Radio, Swaziland 15210
- **1800-1845** All India Radio, New Delhi 11935 15360
- **1800-1855** Radio Mozambique, Maputo 9618 4855 3265
- **1800-1850** FABC, Alice Springs, Australia 2330 (ML)
- **1800-1900** FABC, Tennant Creek, Australia 2325 (ML)
- **1800-1900** Radio Korea, Seoul 15575
- **1800-1900** KVOH, Rancho's Simi, California 17775
- **1800-1900** BBC World Service, London 9410 12095 15700 17640
- **1800-1900** Radio Australia, Melbourne 5995 6020 6035 6080 7205 7215 7240 9580 11850
- **1800-1900** Radio Moscow World Service 11690 11800 11890 13605 15185 15375 15540 17570 17670 17695 21740
- **1800-1900** ELWA, Monrovia, Liberia 11800
- **1800-1900** M-F Radio New Zealand, Wellington 15485
- **1800-1900** CBN, St. John's, Newfoundland 6160
- **1800-1900** CBU, Vancouver, British Columbia 6160
- **1800-1900** CFRC, Montreal, Quebec, Canada 6005
- **1800-1900** CFCN, Calgary, Alberta, Canada 6030
- **1800-1900** CHNS, Hailfax, Nova Scotia, Canada 6130
- **1800-1900** Christian Science World Service 9455 21760 21640 17555
- **1800-1900** CKWX, Vancouver, British Columbia 6080
- **1800-1900** CFB, Toronto, Ontario 6070
- **1800-1900** KUSW, Salt Lake City, Utah 15590

**Midwest To Alaska**

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**Midwest**

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**West Coast To Western Europe**

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**West Coast To Eastern Europe**

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<tr>
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</table>
1800-1900 Radio Jordan, Amman 9560
1800-1900 CBC Montreal 9625
1800-1900 S-F WMLK Bethel, Pennsylvania 9465
1800-1900 Radio RSA, Johannesurg, S. Africa 17765 15270 7230
1800-1900 A.S Radio for Peace Intl, Costa Rica 13630 21566
1800-1900 Voice of America-Africa Service 7195 9575 11920 15410
1800-1900 Voice of America-Middle East Service 6040 9700 9760 11760
1800-1900 Voice of America, Middle East Service 15205
1800-1900 WHRL Noblesville, Indiana 13760 17830
1800-1900 WIBN, Red Lion, Pennsylvania 15255
1800-1900 WRNO, New Orleans, Louisiana 15420
1800-1900 WWCR, Nashville, Tennessee 15690
1800-1900 WYFR, Okeechobee, Florida 11830 13695 15440 17885
1800-1900 WYFR, Okeechobee, Florida 21500
1815-1900 Radio Bangladesh, Dacca 11860V 15255
1830-1845 Radio Prague Intl, Czechoslovakia 6055 7345
1830-1845 Radio Finland, Helsinki 11755 9550 6120
1830-1855 BRT Brussels, Belgium 5910 11665 13375
1830-1855 Radio Polonia, Warsaw, Poland 5995 6135 7125 7285
1830-1900 Radio Riyadh, Saudi Arabia 9705 9720
1830-1900 A.S. Radio Canada Intl, Montreal 13670 15260 17820
1830-1900 M-F Radio Canada Intl, Montreal 21675 17875 15325 7235
1830-1900 Radio Afghanistan, Kabul 4915 6020 7215 9635
1830-1900 Radio Tirana, Albania 7120 9480
1830-1900 Radio Netherlands Intl, Hilversum 6020 15560 17605 21685
1830-1900 Swiss Radio International, Berne 9885 11955
1830-1900 Swiss Radio Intl European Service 3985 6165 9535
1840-1850 M-A Voice of Greece, Athens 11645 12105 15625
1845-1900 Radio Berlin Intl, GDR 9665 9730
1845-1900 Radio Berlin Intl, GDR 9780
1845-1900 All India Radio, New Delhi 15360 11935 11620 9550
1845-1855vIRR Africa No. 1, Gabon 15475

PLEASE NOTE: The above-captioned broadcast from Africa Numero Un in Libreville, Gabon, West Africa, is irregular. They are on until approximately 2300 UTC on this and other frequencies, primarily in French, which is why we do not list them here. You may want to check into those broadcasts as a source of African culture since we no longer have regular audible broadcasts in English from any other African station south of the Sahara.

1900 UTC [3:00 PM EDT/12:00 PM PDT]

1900-1915 Sierra Leone Broadcasting Co., Freetown 3316
1900-1920 Radio Omdurman, Sudan 11635
1900-1925 Radio Netherlands Intl, Hilversum 6020 15560 17605 21685
1900-1930 Radio Berlin Intl, GDR 9760
1900-1930 Radio Berlin Intl, GDR 9665 9730
1900-1930 M-F Radio Budapest, Hungary 15160 11910 935 9585
1900-1930 Radio Canada Intl, Montreal 13670 15260 17820
1900-1930 Radio Sofia, Bulgaria 11680 15310 17825
1900-1930 Radio Afghanistan, Kabul 9635 7215 6020 15440
1900-1930 M-F Radio Canada Intl, Montreal 13670 15260 17820
1900-1930 Radio Japan General Service, Tokyo 11865 11850 15270
1900-1930 S Radio Norway International, Oslo 15165
1900-1930 M-F Radio Portugal, Lisbon 11740 15250 21530
1900-1930 Voice of Vietnam, Hanoi 9840 12020 15010
1900-1945 All India Radio, New Delhi 7412 11620 11935 15360
1900-1950 Deutsche Welle, Köln, W. Germany 11785 11810 13790 15390
1900-2000 ELWA, Monrovia, Liberia 11800
1900-2000 CBC, Montreal 9625
1900-2000 M-F Radio New Zealand, Wellington 15485
1900-2000 Radio Moscow British Service 7330 11630 11890 15185
17695
1900-2000 Radio Moscow World Service 11765 11840 12010 12060
13605 15405 15540 15580
17570 17670 21630 21740
21630
1900-2000 Radio Moscow African Service 11960 12035 15230 15520
17655
(1 English & Zulu)
1900-2000 M-FRAE, Buenos Aires, Argentina 15345
1900-2000 Radio Beijing, China 9440 11515
1900-2000 Solomon Islands Broadcasting Co. 5020
1900-2000 KVOH, Rancho Simi, California 17775
17880
1900-2000 CBN, St. John's, Newfoundland 6160
1900-2000 CBU, Vancouver, British Columbia 6160
1900-2000 CFCF, Montreal, Quebec, Canada 6005
1900-2000 CBC, Calgary, Alberta, Canada 6030
1900-2000 CHNS, Halifax, Nova Scotia, Canada 6139
1900-2000 Christian Science World Service 9455 17555 21640 21780
1900-2000 CKWX, Vancouver, British Columbia 6080

West Coast To Middle East

West Coast To Arctic Europe

West Coast To Central Africa

UICF LUF

MHz.

50.00

40.00

30.00

20.00

10.00

0.00

0 4 8 12 16 20 24 UTC

MHz.

50.00

40.00

30.00

20.00

10.00

0.00

0 4 8 12 16 20 24 UTC

MHz.

50.00

40.00

30.00

20.00

10.00

0.00

0 4 8 12 16 20 24 UTC

October 1990

Monitoring Times
1900 - 2000
CFRB, Toronto, Ontario
6070
1900 - 2000
GBC Radio, Accra, Ghana
6130
1900 - 2000
HLCB European Service, Ecuador
17790 21480 25950ssb
1900 - 2000
KUSW, Salt Lake City, Utah
15590
1900 - 2000
Radio Algiers, Alger
9510 9685 15215
1900 - 2000
Radio Australia, Melbourne
5995 6020 6035 6080
7205 7215 7240 9580
11885 (+13745 from 1930)
1900 - 2000
Radio Havana Cuba
11800
1900 - 2000
Radio Jordan, Amman
9560
1900 - 2000
A.S Radio for Peace Intl, Costa Rica
13630 21566
1900 - 2000
Spanish National Radio, Madrid
11790 15280 15375 15395
1900 - 2000
Voice of America-Africa Service
7195 15410 15445 15580
15690
1900 - 2000
Voice of America-Middle East Service
6040 9700 9760 11760
15205
1900 - 2000
Voice of America-Pacific Service
8525 11870 15180
1900 - 2000
WHRI, Noblesville, Indiana
13760 17830
1900 - 2000
WINB, Hert Lion, Pennsylvania
15295
1900 - 2000
S-F WMKL, Bethel, Pennsylvania
9465
1900 - 2000
WRNO, New Orleans, Louisiana
15420
1900 - 2000
WVCR, Nashville, Tennessee
15690
1900 - 2000
WYFR, Okeechobee, Florida
11830 13695 15440 15566
17612 17885 21615
1920-1930
M-A Voice of Greece, Athens
9395 11645
1930-1930
M Radio Tallinn, Estonia
5925
1930-1930
Radio Austria International, Vienna
5945 6155 12010 13730
1930-1930
Radio Romania Intl, Bucharest
5955 9690 9750 11810
1930-1930
A.S Radio Budapest, Hungary
6110 7220 9565 9835
1930-1930
Radio Sofia, Bulgaria
11910 15180
1930-1930
Radio Yugoslavia, Belgrade
11735 7215 5980
1930-1930
Radio Tikhiy Okean, Vladivostok
5015 7335 9685 11670
11995 15180 15435 15535
15560 17645 17650
1930-1930
Voice of the Islamic Republic Iran
6035 9022
1935-1965
RAJ, Rome, Italy
7275 9710 11800
1940-2000
M.W.H.A.S Radio Ulan Bator, Mongolia
11850 12050
1945-2000
All India Radio, New Delhi
15360 19335 9550

2000 UTC [4:00 PM EDT/1:00 PM PDT]

2000-2005
Vatican Radio, Vatican City
7250 9645
2000-2010
M.W.H.A.S Radio Ulan Bator, Mongolia
11850 12050
2000-2010
Sierra Leone Broadcasting Co., Freetown
3316

2000-2030
Kol Israel, Jerusalem
15640 16605 17630 15485
17590 12077
2000-2030
M-F Radio Portugal
15250
2000-2030
Radio Prague Intl, Czechoslovakia
6930 6055 7345 11990
2000-2030
Radio Romania Intl, Bucharest
5955 9690 9750 11810
2000-2030
Voice of the Islamic Republic Iran
6035 9022
2000-2045
Radio Berin Intl, CDR
13610
2000-2050
Radio Pyongyang, North Korea
6576 9345 9977 9640
2000-2050
M-F Radio for Peace Intl, Costa Rica
13630 21566
2000-2100
Voice of Hope, Lebanon
6290
2000-2100
5975 9410 12095 15070
15260 15400 17755 17792
17800
2000-2100
Radio Australia, Melbourne
6020 6035 7205 7215
7240 9580 11855 13745
(+6080 & 5995 until 2030)
2000-2100
All India Radio, New Delhi
9950 11860 15360
2000-2100
M-AABC, Alice Springs, Australia
2310 (ML)
2000-2100
ABC, Katherine, Australia
2485
2000-2100
M-AABC, Tennant Creek, Australia
2325 (ML)
2000-2100
CBN, St. John's, Newfoundland
6160
2000-2100
CBU, Vancouver, British Columbia
6160
2000-2100
CFCF, Montreal, Quebec, Canada
6005
2000-2100
Radio Moscow World Service
7315 11630 11670 11805
11890 12060 13605 15185
15315 15355 15560 17695
2000-2100
Radio Moscow Africa Service
11715 11775 11980 12035
15220 15535 21630 21740
2000-2100
CBC, Montreal
9625 (ML)
2000-2100
CFCN, Calgary, Alberta, Canada
6030
2000-2100
CHNS, Halifax, Nova Scotia, Canada
6130
2000-2100
Radio Baghdad, Iraq
13660
2000-2100
Christian Science World Service
9455 13770 15610 17555
15265
2000-2100
CKWX, Vancouver, British Columbia
6080
2000-2200
Radio Sta. Peace & Progress, USSR
9470 9820 11830 11860
11980 15260
2000-2100
CFRB, Toronto, Ontario
6070
2000-2010
KUSW, Salt Lake City, Utah
15590
2000-2010
Radio Beijing, China
9440 9920 11500 11715
2000-2100
ELWA, Monrovia, Liberia
11800
2000-2100
Radio Baghdad, Iraq
11860
2000-2100
Radio Jordan, Amman
9560

NOTE: The broadcast shown above is intended for joint US-Arab troops in Saudi Arabia and the Gulf area, and is subject to change due to situational constraints.

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2100 UTC [5:00 PM EDT/2:00 PM PDT]

2100-2105 Radio Damascus, Syria 12085 15095
2100-2110 Vatican Radio, Vatican City 6190 7250 9645
2100-2115 Radio Prague Intl, Czechoslovakia 5930 6055 7345 11990
2100-2125 Radio Netherlands Intl, Hilversum 9860 13700 15560
2100-2130 M Radio Ljubljana, Yugoslavia 5980 7240 9620
2100-2130 Radio Berlin Intl, GDR 7185 9665 9730
2100-2130 Radio Berlin Intl, GDR 13610 15350
2100-2130 Radio Budapest, Hungary 11910 15160 9335 9585
2100-2130 Vatican Radio African Service 7220 6110
2100-2130 Sierra Leone Erddingst.Co,Freetown 17730 17710 21650
2100-2130 Radio Korea, Seoul 15575 7550 6480
2100-2130 Radio Romania Intl, Bucharest 9690 9750 11810 11940
2100-2130 Radio Beijing, China 3985 11715 15110
2100-2130 Radio Japan General Service, Tokyo 17960 17810 15270 15230
2100-2130 Radio Sweden, Stockholm 9655 11705
2100-2130 Swiss Radio International, Berne 9885 13635 15525 12035
2100-2130 Radio Finland, Helsinki 6120 11755 15400

2100-2150 Deutsche Welle, Koln, West Germany 9670 9765 11785 13780
2100-2200 Radio Canada Intl, Montreal 15325 17875
2100-2200 ELWA, Monrovia, Liberia 11860
2100-2200 Radio Angola Intl, Luanda 3355 9535
2100-2200 All India Radio, New Delhi 11715 11620 9910 9550
2100-2200 CBC Montreal 9625
2100-2200 M-F Radio New Zealand, Wellington 15265
2100-2200 Radio Moscow World Service 7315 9800 11615 11630
3316
2100-2200 CBN, St. John’s, Newfoundland 9545
2100-2200 CBU, Vancouver, British Columbia 5160
2100-2200 Voice of Hope, Lebanon 6280
2100-2200 CFCF, Montreal, Quebec, Canada 6005
2100-2200 CFCN, Calgary, Alberta, Canada 6030
2100-2200 CHNS, Halifax, Nova Scotia, Canada 6130
2100-2200 Christian Science World Service 9455 13770 15610 17555
2100-2200 Solomon Islands Broadcasting Co. 5020 9545
2100-2200 CKW, Vancouver, British Columbia 6080
2100-2200 CFRB, Toronto, Ontario 5070
2100-2200 KUSW, Salt Lake City, Utah 15590
2100-2200 Radio Australia, Melbourne 11860 15465 17795
2100-2200 (until 2130: 7215 13745)
2100-2200 KVOH, Rancho Simi, California 17775
2100-2200 Radio Baghdad, Iraq (to Europe) 13660
2100-2200 Radio Baghdad, Iraq 11860

NOTE: The broadcast shown above is intended for joint US-Arab troops in Saudi Arabia and the Gulf area, and is subject to change due to situational constraints.

2100-2200 Radio Beijing, China 9920 11500
2100-2200 Radio Jordan, Amman 9650
2100-2200 Radio for Peace, Costa Rica 13630 21566
2100-2200 Voice of America-Africa Service 7195 15410 15445 15580
2100-2200 Voice of America-Middle East Service 7195 15410 15445 15580
15600 17785 17800 17970 21485
2100-2200 Voice of America-Middle East Service 6040 9700 9760 11760
15205 11710
2100-2200 Voice of America-Pacific Service 11870 15165 17735
2100-2200 WHRL, Noblesville, Indiana 13760 17830

MONITORING TIMES

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## Frequency Section

### 2200 UTC [6:00 PM EDT/3:00 PM PDT]

<table>
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<th>Station Details</th>
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<td>WRNO Wide World, Louisiana</td>
<td>13270</td>
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<tr>
<td>WWCR, Nashville, Tennessee</td>
<td>15690</td>
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<td>WYFR, Okeechobee, Florida</td>
<td>11830 13695 15566 17612</td>
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<tr>
<td>Radio Damascus, Syria</td>
<td>15095 12080</td>
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<tr>
<td>Radio Sofia, Bulgaria</td>
<td>11660 11765 15330</td>
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<td>Radio Canada Intl, Montreal</td>
<td>11880 15150 17820</td>
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<td>HCBJ, Quito, Ecuador</td>
<td>15270 17790 25650</td>
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### 2230 UTC [7:00 PM EDT/4:00 PM PDT]

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<tr>
<td>CHNS, Halifax, Nova Scotia, Canada</td>
<td>6130</td>
</tr>
<tr>
<td>Christian Science World Service</td>
<td>9455 15275 15300 15405</td>
</tr>
<tr>
<td>CKW, Vancouver, British Columbia</td>
<td>6080</td>
</tr>
<tr>
<td>CFRB, Toronto, Ontario</td>
<td>6070</td>
</tr>
<tr>
<td>KUSW, Salt Lake City, Utah</td>
<td>15500</td>
</tr>
<tr>
<td>Voice of Hope, Lebanon</td>
<td>9280</td>
</tr>
<tr>
<td>Radio Australia, Melbourne</td>
<td>11880 13605 15240 15485</td>
</tr>
<tr>
<td>Radio Havana Cuba</td>
<td>7140</td>
</tr>
<tr>
<td>Radio Peace Intl, Costa Rica</td>
<td>13630 21666</td>
</tr>
<tr>
<td>Radio Tonga, Kingdom of Tonga</td>
<td>5030v</td>
</tr>
<tr>
<td>Voice of America-East Asia Service</td>
<td>7120 9770 11760 15185</td>
</tr>
<tr>
<td>Voice of America-Eur./Pac. Service</td>
<td>9852 11805 15345 15370</td>
</tr>
<tr>
<td>Voice of Free China, Taiwan</td>
<td>17750 21720</td>
</tr>
<tr>
<td>United Arab Emirates R., Abu Dhabi</td>
<td>9600 11985 13605</td>
</tr>
<tr>
<td>WHRL, Noblesville, Indiana</td>
<td>13760 17830</td>
</tr>
<tr>
<td>WINB, Red Lion, Pennsylvania</td>
<td>15185</td>
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<tr>
<td>WRNO Wide World, Louisiana</td>
<td>13720</td>
</tr>
<tr>
<td>WWCR, Nashville, Tennessee</td>
<td>15690</td>
</tr>
<tr>
<td>WYFR, Okeechobee, Florida</td>
<td>11580 11830 13695 17612</td>
</tr>
<tr>
<td>Vatican Radio, Vatican City</td>
<td>17885 21525</td>
</tr>
<tr>
<td>Voice of Vietnam, Hanoi</td>
<td>9615 11830 15105</td>
</tr>
<tr>
<td>Voice of China, Taiwan</td>
<td>9860 12020 15010</td>
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<tr>
<td>Radio Polonia, Warsaw, Poland</td>
<td>5995 6135 7127 7270</td>
</tr>
<tr>
<td>Radio Tirana, Albania</td>
<td>7215 9480</td>
</tr>
<tr>
<td>Kol Israel, Jerusalem</td>
<td>15640 12077 11605 17575</td>
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<tr>
<td>Radio Sofia, Bulgaria</td>
<td>15760 17630</td>
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<tr>
<td>Radio Vilnius, Lithuania</td>
<td>6100 9675</td>
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<tr>
<td>Swiss Radio Intl, European Service</td>
<td>6190</td>
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<tr>
<td>Radio Berlin International, GDR</td>
<td>5965 7205</td>
</tr>
<tr>
<td>Radio Moscow World Service</td>
<td>15110 11745 11715 9910</td>
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<tr>
<td>CBC Northern Quebec Svc, Canada</td>
<td>9625</td>
</tr>
<tr>
<td>CBN, St. John's, Newfoundland</td>
<td>6160</td>
</tr>
<tr>
<td>Radio Korea, Seoul</td>
<td>15575</td>
</tr>
<tr>
<td>Radio Moscow North American Svc</td>
<td>11670 11690 11710 11780</td>
</tr>
<tr>
<td>Radio Slate Peace &amp; Progress USSR</td>
<td>9470 9820 11830 11880</td>
</tr>
<tr>
<td>Radio Moscow World Service</td>
<td>11615 11745 11775 11865</td>
</tr>
<tr>
<td>(from 2230 add: 7315 15480 17655 17850 17890)</td>
<td></td>
</tr>
<tr>
<td>CBU, Vancouver, British Columbia</td>
<td>6160</td>
</tr>
<tr>
<td>CFCF, Montreal, Quebec, Canada</td>
<td>6005</td>
</tr>
</tbody>
</table>

### Monitoring Times

- **West Coast To Indonesia**
  - MUF: 50.00 MHz
  - LUF: 0.00 MHz
- **West Coast To Australia**
  - MUF: 50.00 MHz
  - LUF: 0.00 MHz
- **West Coast To Central America**
  - MUF: 50.00 MHz
  - LUF: 0.00 MHz

*October 1990*
<table>
<thead>
<tr>
<th>Frequency</th>
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<tr>
<td>2300-2330</td>
<td>Radio Sofia, Bulgaria</td>
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<td>2300-0000</td>
<td>Radio Moscow World Service</td>
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<td>2300-0000</td>
<td>Voice of Vietnam, Hanoi</td>
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**SUGGESTIONS? SOMETHING MISSING?**

Let us know your corrections, additions, and suggestions of what you'd like to see to Program Manager Kannon Shanumugam at 4412 Turnberry Circle, Lawrence, Kansas 66047.
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ICOM's New IC-R100 Car Radio

A couple of months back, we looked at Philips' DC777 AM/FM/shortwave car radio, and found that it worked nicely in the car. No DX machine, mind you -- just a pleasant set for listening to international broadcasts while cruising on down the road.

It seems that when it rains, it pours. ICOM has also come out with a serious shortwave car radio, the IC-R100, and it's very different from the Philips offering.

Small, with Features Aplenty

As you might expect from ICOM, the 'R100 is small with a number of communications-oriented features. It covers all the way from 500 kHz to 1.8 GHz in the AM, wide-FM, and narrow-FM modes. Given all this, it's surprising that it doesn't cover the longwave broadcasting band found in many parts of the world outside the Americas. The Philips unit does, though.

The 'R100 has all sorts of scanning and search functions, as well as 100 memory channels -- a lot more than are on the Philips unit. There's also a tiny speaker on the bottom of the 'R100, and it sounds quite good. If you want to hook it to an external speaker, there's a plug on the back. It's all mono, though. Unlike the Philips unit, the 'R100 does not offer stereo or any other high-fidelity features.

Unlike the Philips unit, which uses an ordinary automotive antenna connector, the 'R100 uses a PL-259 connector for its world band antenna and another connector for a VHF/UHF antenna. This makes it a pain to connect to a regular car antenna.

Good Performer as a Radio...

As with the Philips unit, the 'R100 offers no narrow AM bandwidth or single-sideband facilities. However, its only bandwidth -- 6 kHz -- does a pretty good job of rejecting adjacent-channel interference. Remember, you can't really DX from a car because of all the ignition noise that clobbers weak stations. As to sensitivity, it's not equal to that of a good communications receiver, but it's plenty good enough for listening to world band radio while driving around.

There are three knobs on the front of the 'R100 -- volume, squelch and tuning, which is adjustable from 1 to 25 kHz steps. There's also a 12-button keypad, and here's the set's biggest fault.

...but Terrible Ergonomics

That little keypad measures just 1-1/2 x 1-1/4 inches, or about 4 x 3 centimeters. Each button is tiny, and half of them are triple-function -- that is, they can do up to three different things each. So the button labeling -- both on and above each button -- is all but impossible to make out from a distance.

Too, the keypad is in the same vertical plane as the 'R100's front panel. This means that if you see it from any angle other than head-on, keypad legibility becomes even worse.

So even though the keypad numbers are in the handy three-by-three-over-one layout found on most telephones, we found ourselves picking up the receiver -- like you'd hold up a kitten -- to read the keypad and press those tiny buttons. You can imagine what it would be like for drivers to stick their heads near the radio so they can see those little buttons as they zip through rush-hour traffic.

That's not the end of it, either. To make matters worse, frequency entry requires more button-pushing than it should. To get Radio Prague on 5930 kHz, for example, you have to press ENTER -- 5 -- decimal -- 9 -- 3 -- 0 -- and ENTER again. It takes a steadied hand, strong nerves, and real concentration to push those little bitty buttons in the right order while you're fighting traffic.

Bottom Line: Nice, but No Cigar

The bottom line is that the electrical performance of ICOM's new IC-R100 is more than adequate for listening to world band radio in the car. Its ergonomics, though, are a driver's worst dream come true. Overall, the Philips DC777 is much better.

For those of us in the United States or Canada, whether or not to buy this radio is moot. Like ICOM's other new models, the IC-R72 and IC-R1, it's not sold there. In Europe, Asia and other parts of the world it sells from about the equivalent of $700 US dollars to around $1,000.

You can hear Larry Magne's equipment reviews the first Saturday of each month, plus PASSPORT editors Don Jensen and Tony Jones the third Saturday, over Radio Canada's "SWL Digest." For North America, "SWL Digest" is heard at 7:35 PM ET on 5860 and 9750 kHz, with a repeat Tuesday at 8:30 AM ET on 9635, 11855 and 17820 kHz.

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The Realistic PRO-2006

Although the Realistic PRO-2006 scanner is not a new arrival on the market, it has proved to be an extremely popular receiver. The following is an in-depth review by a respected MT contributor, Bob Fanass.

The Radio Shack PRO-2006 is a 400 channel, wide coverage scanner radio, manufactured in Japan by General Research Electronics. It is the successor to the PRO-2005 and a grandchild of the PRO-2004, the super scanner which put Radio Shack out in front of its competition in the base station scanner market.

The PRO-2006 is almost identical to the discontinued PRO-2005, with the exception that the PRO-2006 boasts Hyperscan™, a catchy way of saying that it scans fast — about 26 channels/second versus the PRO-2005’s 16 channels/second rate. At about $400, the PRO-2006 is $20 cheaper than the PRO-2005 was. Both scanners are built using surface mount components and are housed in a gray plastic cabinet.

Frequency coverage

The PRO-2006 covers 25-520 and 760-1300 MHz, except for two gaps in the cellular telephone bands. The two gaps in the 800 MHz range can be restored in all the Radio Shack continuous coverage scanners by removing a diode. Diode D502 is the culprit in the PRO-2005 and PRO-2006.

A matrix of diodes, attached to the microprocessor’s input port, is often used to configure radios for sale in different markets. The diode matrix on the new PRO-2006 is located on the vertical board just behind the front panel. There are two diodes present, and holes drilled for two more.

Lots of memory

The PRO-2006 has the usual features that scanner buffs have come to expect: individual channel lockouts, selectable two second rescan delay, an external speaker jack, etc. Casual scanner users don’t need 400 channels, but scanner hobbyists can have those channels filled up in no time flat, especially with frequencies in the vast 225-400 MHz military air band, and other federal government allocations.

With so many channels to program, one dredges the thought of a power failure, which could clear memory in a hurry. Not to worry, the PRO-2006 memory is backed up by a conventional 9 volt alkaline battery (not supplied), which should be replaced every six months or so.

The 400 channels are divided into 10 bands of 40 channels each, and one can select or deselect any channel bank from the scan list. Individual channels can be locked out in the customary way, but the PRO-2006 maintains the handy feature introduced in the PRO-2004, a LOCKOUT REVIEW. Successive depressions of this key step through the locked out channels.

Scanners worth their keep have a priority feature, with channel 1 usually designated the priority channel. The PRO-2006 is more flexible. Any of the 400 channels may be designated the priority channel. When the PRIORITY key is depressed, that channel will be sampled every two seconds and the radio will stay there if a signal is heard.

The PRO-2006 has two scan speeds, which measured approximately 13 and 26 channels/second. While scanning at high speed, the PRO-2006 won’t skip over weak signals like some of the AOR-2515 scanners do. Adding diode D501, situated at an unmarked location between D502 and D503, sped up the PRO-2005 scan and search rates by 25 percent. Adding the same diode in the PRO-2006 has no effect on the scan or search rates.

It has been claimed that a PRO-2005 could be made into a PRO-2006 by merely replacing the CPU clock crystal with one of a higher frequency. Don’t believe it. Changing the PRO-2005 clock speed would affect both the rescan delay and the priority rate, and they would no longer be two seconds long, as they are in the PRO-2006.

When programming a channel, the PRO-2006 firmware sets the mode automatically, based on its idea of what mode is most prevalent on that frequency. This feature saves extra keystrokes, and makes one appreciate the thought that went into the design of this radio. The default mode can be overridden easily, if need be, such as to listen to a military mid-air refueling operation in the 225-400 MHz range, which is mainly populated with AM signals.

Searching

The SEARCH facility found on most programmable scanners allows the entry of a pair of frequencies, then by pressing a key, the radio searches frequencies between those limits. The PRO-2006 allows for 10 pairs of limits. These pairs of limits are stored in their own memory, and don’t use up any of the conventional 400 memory channels. One can set up several search pairs, for instance:

46.610-46.970 MHz: cordless telephones
144-148 MHz: the 2-meter ham band
418.625-418.900: Drug Enforcement Admin.

Another unique feature of the better Radio Shack models is the MONITOR key, which stops the search and stores the frequency in one of ten special monitor memories. These memories are separate from the 400 main memory channels. The search can be restarted from where it left off by striking the up or down arrow key.

The user can select the search direction (up or down) and step size of 5, 12.5 or 50 kHz, although the PRO-2006 is intelligent enough to select a default step size based on the frequencies being searched. As on the PRO-2004 and PRO-2005, there is a hidden step size of 30 kHz, but this step size is only used in the cellular phone band after restoring full 800 MHz coverage.

The selected parameters are displayed on the LCD panel, smaller than the panel in the PRO-2004.

The DIRECT key allows one to start searching up or down from whatever frequency is on the display. Let’s say the scanner is in MANUAL mode, and set at channel 26, which contains 460.100 MHz. Striking the DIRECT then UP-ARROW keys starts the PRO-2006 searching upwards from 460.100. This is a nice feature.

The PRO-2006 contains a "window detector" circuit, which is called into play during a SEARCH operation. This circuit tries to detect when the radio is tuned close to the center frequency of a station, and prevents the search from halting prematurely, off to the side of the signal.

The AFC (automatic frequency control) circuit of the Bearcat 800 XLT often causes a search of 850 MHz signals to halt prematurely. Even though the signal sounds on frequency, the display reads the wrong frequency. Neither the PRO-2004 nor the PRO-2006 have this problem.

The PRO-2006 includes a SOUNDBELCH, resembling the VSC SQUELCH on the ICOM R-7000, which may be used during scan or search operations. With the sound squelch enabled, signified by a red lamp above the pushbutton, the scanner will skip over unmodulated signals. This is handy for skipping over "birdies," link signals with a constant carrier, or baby monitors when baby is asleep.

The manual warns that the sound squelch may be fooled by signals with low modulation, and skip over them. The PRO-2006 SOUNDBELCH is identical in appearance to the PRO-2005, there is a difference.
SQUELCH tries to detect the presence or absence of modulation (not human speech), so unfortunately, it thinks that noisy dead carriers, digital data signals, and paging tones are worth monitoring and will stop the scanner to listen to them.

**Basic performance**

To evaluate sensitivity, the PRO-2006 was compared with its grandfather, the PRO-2004. Since a signal generator was not used, quantitative measurements could not be made. Instead, an Antenna Specialist AV-801 antenna was switched between radios, signals from stations were compared by ear, and the results tabulated.

Simply put, the PRO-2006 proved more sensitive than the PRO-2004 on all bands tested, and much more sensitive in the 850 MHz range. The earlier PRO-2005 was also more sensitive than the PRO-2004, but both the PRO-2005 and the PRO-2006 let 800 MHz trunked systems and cellular telephone conversations bleed through while searching the 118-132 MHz commercial aircraft band. The 800 MHz interference was heard on the 2005 and PRO-2006, not the 2004. Although the PRO-2004, PRO-2005 and PRO-2006 can suffer the effects of intermodulation, they are much more immune than the overly sensitive image laden Bearcat 800 XLT. Intermodulation from paging appeared on several frequencies above 1000 MHz, in a region not many people monitor. Oddly, audio from television channel 50 was heard on 1251.625 MHz. The PRO-2006 has a 10 dB attenuator, operable by a slide switch on the rear. The attenuator helps eliminate intermod, but few people would want the attenuator enabled while scanning or searching as it degrades both wanted and unwanted signals. A programmable attenuator feature, selectable for each channel, would have been a better idea.

The IF conversion design of both the ICOM R-7000 and Radio Shack PRO-2006 allows use of a very high IF (intermediate frequency), which helps avoid image problems. The audio output quality is good, although the top mounted speaker directs the sound at the ceiling, but adding an optional external speaker allows the sound to be directed at the user’s head.

Unfortunately, the audio level of AM signals is somewhat below that of NBFM signals, requiring a slightly different setting of the volume control, although this has improved over the PRO-2005. When scanning both AM and NBFM modes, one has to find a compromise position of the volume control.

**Mechanical and electrical construction**

The newest scanners use tiny surface mount components, which permits manufacturers to cram more circuitry into smaller cabinets. This technology makes home repairs and circuit modification almost impossible. The “lick and stick” parts are so small it is difficult to tell a surface mount resistor from a capacitor, and components are rarely marked with their values.

The PRO-2006 is smaller and lighter than the 2004. It is enclosed in a gray plastic cabinet, with a plastic front panel. If one is going to pay $400, one deserves to own some metal, but several stages are internally shielded in their own metal compartments. The entirely plastic cabinet of the older PRO-2003 allowed wideband noise to radiate out of the scanner and into nearby shortwave receivers.

The PRO-2006 vertical front panel is an advancement over the sloping panel of the 2004. You can stack the scanner on top of other equipment and see the controls without standing up. If siting directly on a table, two hinged plastic feet, padded with rubber bumpers, can fold out from under the front of the radio to tilt it at a good viewing angle.

There is a single BNC antenna connector on the rear of the PRO-2006, and the radio is supplied with a telescoping antenna which screws in through a hole in the top of the cabinet.

Internal construction is excellent, and the internal shielding is commendable. Interstage shielding is very important in a wide band receiver, to prevent it from “hearing itself,” an undesirable phenomena which results in birdies. The PRO-2006 owner’s manual lists dozens of birdie frequencies. The shielding is much better in the PRO-2006 than in the 800 XLT, which uses no shielding around the 800 MHz converter stage, and probably accounts for some of the birdies in the Bearcat.

Frequencies and other indicators are displayed on a backlit LCD (liquid crystal display) panel, and the level of backlighting can be dimmed by a pushbutton switch. As with the PRO-2005, the poor contrast on the small LCD panel makes it difficult to read a frequency more than just a few feet away, and is nowhere near as good as the greenish blue fluorescent display in the old Bearcat 300.

However, physically challenged and vision impaired scanner buffs will appreciate the conventional raised rubber keyboard in the PRO-2006. Only moderate pressure is required for actuation, and key depressions are confirmed by a mild “beep” audio tone. The PRO-2006 is the right size to fit under the dashboard of intermediate sized cars, but there are few concessions to those wanting to use this scanner in a vehicle. It can operate on 12 VDC although neither a mobile power cord nor mounting bracket are provided.

The PRO-2006 is warranted for one year, which is reassuring.

**What’s missing**

So, with all these neat features, what’s missing from the PRO-2006? It would have been better to have more channel banks with fewer channels in each bank, say 20 banks of 20 channels. A “search and store” mode, like that on the ICOM R7000 and older Bearcat 250 would have been nice, and such a circuit is being marketed by Key Research. A lighted keyboard and a signal strength meter would also be welcome, as would a mobile mounting bracket and SCA output jack.

A frequency query facility, as found in the Uniden 200 XLT, would have been on useful for finding in what memory channel a given frequency is stored. Mega-channel scanners really need this feature and it would have been trivial to implement in the PRO-2006 firmware.

**Summary -- it’s tops**

If all one wants is a scanner to monitor local police and fire, there are certainly cheaper and simpler models than the PRO-2006. This scanner is the best base/mobile scanner available at time of writing. AOR’s AR-2515 has more channels, but its buggy firmware and tendency to skip active channels prevent it from taking top honors. At about $400, the PRO-2006 scans much better than the ICOM R7000, a great VHF/UHF communications receiver, priced at over $1,000.

The PRO-2006 has the right features and performance, especially for scanning the wide 225-400 MHz military aircraft band and the newer federal law enforcement radio systems with their dozens of channels.
Licensed amateurs have enjoyed the adventures associated with very low power (QRP) transmitter operation for decades. This interesting challenge began in the early days of radio when few experimenters could afford to buy the parts needed to build a high power (QRO) transmitter: the years of The Great Depression inspired innovations in radio designs that led to good efficiency with minimum parts.

Now, in this day of solid-state techniques, along with the proliferation of low-cost surplus components, we can build transistorized QRP transmitters that are inexpensive and compact. It is possible to construct a flea-power rig and have it on the air in a couple of hours.

Today we have more than 100,000 dedicated QRPers, worldwide, according to information I have received from the various QRP societies. The movement is growing as the prices for commercial amateur equipment continue to increase at an exponential rate.

But, beyond this consideration comes the thrill of enjoying a chat with some distant ham when you are using 5 watts or less of transmitter output power. Some dedicated QRPers use only milliwatts of power. A 50-mW CW transmitter can span a distance of 1000 miles under ideal band conditions if you use a dipole antenna at a reasonable height above ground.

For example, I have received signal reports of RST 569 at midday on 40 meters from stations 800-900 miles away while operating with a one-transistor crystal-controlled 50-mW transmitter. On 20 meters I have worked the four corners of the world with 2-watt rigs and modest antennas. I have even broken into DX pileups with QRP equipment.

A QRP operator is a patient person. It is important to call CQ on a quiet frequency. Several CQs may be necessary before someone answers your call. It is wise to call only those stations with relatively strong signals. This is because the other person may be using a 100 watts (or even a kW) and although his signal is loud at your location, your weaker signal may not be readable at his QTH. The exception is when the other station is also equipped with a QRP transmitter.

QRP equipment is ideal for field use from a battery type power supply. Campers, vacationers and hikers are fond of QRP gear for this reason. Small solar-electric panels are sometimes used to keep a NiCd battery pack topped off for the portable QRP station. (See my article in MT, June 1990.) Vehicle and boat batteries also serve well as sources of power.

The Simplest Type of QRP Transmitter

If you are a beginner to transmitter construction, I recommend that you start with a simple circuit, get it working well, then put it on the air and try your hand at contacting another amateur station. Figure 1 shows a simple circuit that you can tack together on a breadboard in less than an hour.

In this example, we can build it for 80, 40 or 20 meters from the component values listed. C1 and C2 control the feedback, which is necessary to make Q1 oscillate. Too little feedback prevents the crystal from vibrating, and too much feedback robs transmitter output power and causes a chirpy CW signal. C3 is used to tune L1 to the crystal frequency.

L2 has the proper number of turns to match the Q1 collector to a 50-ohm antenna or load. Output power will be low if L2 is too small. Excessive loading will occur if L2 has too many turns, and this can prevent Q1 from oscillating, cause a chirpy signal or lower the output power. You may experiment with the number of L2 turns in an effort to strike a compromise between power output and a nonchirpy signal.

The oscillator is keyed via J1. When the key is up (open circuit) there is no current flow through Q1 and hence no oscillation. Closure of the key completes the base and emitter return circuits to provide oscillation.

The crystal, Y1, is a fundamental type that is chosen for the desired operating frequency. I do not recommend WW-11 surplus FT-243 crystals, since many of them tend to be sluggish (Q1 may not oscillate), although if their internal parts (including the quartz element) are cleaned carefully with hot water and soap, then rinsed and dried, they may work nicely. I prefer plated crystals in HC-6/U holders for best results. General-purpose crystals that are ground or etched for a 30-pF load capacitance are suggested, should you order a new crystal.

Q1 need not be a 2N4401. Any similar NPN transistor with an IT (frequency at which the transistor gain is unity or 1) of 100 MHz.
or greater is suitable in the Figure 1 circuit. Such devices as the 2N4400, 2N2222A, 2N3353, 2SC779 and 2N3866 are excellent for this QRP rig. Some of these devices are available as surplus for as little as 15 cents a piece. How's that for economy in this era of high prices? If you want more output power, use two of these transistors in parallel at Q2.

Assembling the Transmitter

The Figure 1 circuit can be hooked together on a piece of perforated board or a universal type of breadboard. An etched PC board is not required. But, you may wish to make a small PC board for the project if you're experienced at layout and etching. The entire circuit should fit easily on a 2 by 2 inch PC board. Make an effort to keep all of the component leads as short and direct as practicable. RF circuits always work best if you minimize unwanted stray inductance (caused by excessive lead length).

Checkout and Operation

Connect a 1/2-W 48-, 51- or 56-ohm carbon resistor across J2, apply +12 volts and close the key while monitoring the transmitter frequency with a receiver. If no signal is heard, adjust C3 until oscillation occurs. Key the transmitter and listen to the note. If it is a bit chirpy, readjust C3 until the signal sounds proper. You may tune for maximum output power (C3) while observing the S meter of your receiver. Alternatively, you can use a VTVM and an RF probe, or a scope, when adjusting C3 for maximum output power from J2.

If no oscillation occurs after adjusting C3, try another crystal. If this does not cure the problem try increasing the value of C2 until oscillation takes place. Your particular crystal may require more feedback voltage. Finally, and assuming that the wiring is correct, try replacing Q1 if the circuit fails to oscillate.

It is important that the SWR of your antenna is low. The circuit works well, as described, if the load impedance is between 40 and 70 ohms. I suggest that you check the antenna system first with your station transmitter and an SWR meter. If you use an antenna tuner, adjust it for an SWR of 1 before connecting the QRP rig to the antenna system. Your best DX will occur when the antenna is matched to its feed line, and when the feed line is matched to the transmitter. Maximum power transfer always occurs when unlike impedances are matched.

Some Closing Comments

If you are not a licensed amateur you may still wish to construct this project as a learning exercise. It is legal for you to own a transmitter if you do not use it on the air. Use the resistor mentioned earlier as a dummy antenna when testing the circuit. Take the transmitter to a ham friend's house and ask him to test it on the air.

This project may be the one that encourages you to study for your amateur license. It may be used with a receiver as a code-practice oscillator. Reference 1 lists two QRP organizations that publish quarterly journals. The publications contain numerous simple circuits and all manner of information about the QRP movement, worldwide.

Reference

1) QRP Amateur Radio Club, International (QRP ARCI), P.O. Box 776, Alpine, TX 79831.


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MONITORING TIMES
October 1990
Mixed Mods

The Poky PRO-2021

Brian King has submitted some modifications for the Realistic PRO-2021 scanner. The first mod is a scan speed increase. The 2021 has a poky 7 channel per second scan rate in the high speed mode. By replacing the existing R-147 resistor with a 1/4 watt carbon film resistor of 15 K ohms the scan speed is increased from 7 to 11 CPS in the high speed mode. (Ed. note: on my 2021, after performing this mod over two years ago, I noted that the scan speed was on the order of 13 CPS with no problems in locking onto a signal. Scan speed may vary according to the scanner.)

There may be a way to add frequency coverage on the 810-960 MHz band by adding a resistor from pin 13 of IC-8 to the RF end of R-113. I have not personally done this mod, but wonder if anyone out there has? If you would like to share the success or failure of adding 800 MHz to a PRO-2021 scanner, please write me at the Brasstown address.

Performing the BC-140 Mods

Jerry Brown, K2VA, wrote to tell of his success at modifying the Bearcat BC-140 (EW, July '90 M1). Says Jerry, "Upon removing the printed circuit board from the bottom half of the cabinet, by taking out the five screws and unsoldering the black wires from the ground shield, I discovered another ground shield soldered to the board that made it impossible to install the 22 ohm resistor and tap into the runs at the connector.

"The shield was easily removed by unsoldering it from the board. BE CAREFUL. The PC leads on the board are very close together and the pads come off the board very easily with too much heat from the soldering iron."

Jerry also states that you don't need to use SPST switches for the priority scan and instant weather switches. Instead, these need to be momentary contact push button switches (RS # 275-1547B). These two control lines only need to be momentarily grounded to enable or disable the selected function. In addition, Jerry placed the two push button switches on the front panel between volume and squelch pots.

Finally, Jerry says that it is not necessary to program the local weather frequency into the BC-140. These NOAA freqs are apparently preprogrammed into the scanner and it selects the active frequency in your local area.

Thanks, Jerry, and no, I don't have any mod info on the BC-170. How 'bout it, gang... anyone out there have any mods for the BC-170 scanner?? Write me at the Brasstown address.

Increased Sensitivity for the IC-202

For the last few months we've apparently been leaving the ham radio operators out in the cold. This modification is intended to right that wrong.

This ham modification was submitted by Scott Richards, G5CSU, and concerns the ICOM IC-202 two meter portable SSB transceiver.

In the late 70s and early 80s, ICOM marketed two portable two meter transceivers. The IC-202 was the first marketed and then superseded by the IC-202S. The "S" model included lower sideband along with extended frequency coverage to 146 MHz. Styling was almost identical and the two radios enjoyed much popularity both in America and Europe.

(Ed. note: I can attest to that since being stationed in the UK for 5-1/2 years, many of my UK ham friends used one version or the other of the IC-202 coupled to a 4CX250 amplifier to put a poten two meter SSB/CW signal on the air from Britain).

These portable VHF SSB packages can be had at radio rallies (hamfests) for around $100 ($150 US). (Ed. note: IC-202 series transceivers can be purchased somewhat cheaper in the US. Check the "yellow sheets" and hamfest flea markets. A stock 202 should run about $85 while the 202S will cost around $125.)

As they stand, either of the IC-202 radios are a marvel of engineering and packaging. They are a fun radio to use and many hours of enjoyment can be had using this equipment.

One of the major deficiencies of both radios is the lack of receiver sensitivity. The manual states that both radios exhibit a .5 µV for 10 dB S/N/N. In reality this figure is exaggerated and a more realistic sensitivity reading would be on the order of 1.0 µV. This is assuming that the receiver is properly aligned, of course.

Therefore, the first order of business is to hot-up the receiver a bit. Remember, these radios were designed and produced before the major advances in receiver front end technology found its way into the amateur radio market. Hence, the addition of a good two meter preamp is essential to successful VHF operation.

Two meter preamps are plentiful; however, good two meter preamps are rare indeed. Advanced Receiver Research, Box 1242, Burlington, Connecticut 06013, makes a very fine line of VHF/UHF receiver preamps.

The ARR model P144VDA was chosen for the modification to my IC-202. This particular preamp has a 15 dB gain and less than 1 dB noise figure. This means that the incoming signal will be amplified by 15 dB with little addition of noise to the receiver front end. A low noise figure is very important in preamp selection, as 15 to 20 dB of gain is of little use if the preamp injects excessive noise right along with the desired signal.

![Fig. 1](image1.png)

Fig. 1

![Fig. 2](image2.png)

Fig. 2
Monitoring Times invites you to submit your favorite projects for publication. For more information, contact Rich Arland, c/o MT, P.O. Box 98, Brasstown, NC 28902

Since my IC-202 was not going to be used in a mobile or portable environment, inclusion of the ARRL P144VDA preamp inside the IC-202 was a simple matter of removing the existing battery compartment and installing the preamp in that area - Figure 1. The battery case takes up almost half of the underside of the IC-202 chassis. Removing it was not difficult, just a few screws and the entire assembly pops out of the case.

The preamp was placed in the lower left portion of the chassis next to the speaker using double sided sticky tape. Power for the preamp was taken from the positive side of the power plug and routed to the underside of the chassis via a convenient hole next to the antenna connector. Input/output cables (RG-174) for the preamp were also routed via the same hole.

Input to the preamp was taken at diode D-25. This is the same for the IC-202 and IC-202S. There is a two inch piece of grey subminiature coaxial cable that connects D-25 to the top of L-1 which is the input to the RF amplifier. Locate this coaxial cable and remove it. The input coaxial cable (RG-174) is soldered to the input pads on the preamp. Output from the preamp is routed back through the same hole to the pads at L-1 where it is soldered in place behind the coil.

WORD OF CAUTION: In order to solder the coax to the PC board pads behind L-1, you are going to have to remove the front panel, speaker and the VXO unit PCB in order to gain access to the underside of the main board. This is a simple process but it is time consuming. Don't rush the project and you will have no problems. A ground lug is soldered onto the ground plane of the preamp and terminated on the chassis in a convenient hole using a screw and lockwasher.

The final step in the installation of the preamp is to tune the unit. This is best done by someone experienced in tuning VHF/UHF circuitry. Simply peaking the preamp for max noise does not insure that the preamp is doing the best job it can. It is better to align the preamp by using noise figure measurements at a given frequency which insures that the maximum gain is being provided for the least amount of generated noise.

With the preamp peaking along, the difference in receiver characteristics was dramatic, to say the least. Since the preamp was placed inside the IC-202 case, no extra wires or coax cable protrude, enhancing the looks of the transceiver and drastically reducing the chances of problems with the input/output preamp connections.

My thanks to GCSU for the aforementioned mods to the ICOM-202 series of VHF SSB/CW transceivers. Hopefully this will stimulate some of you out there to dust off the rig and haul out the soldering iron.

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MONITORING TIMES October 1990
A Portable Direction-Finding Antenna

Have you ever wished that you could track down the source of illegal radio interference? Perhaps you've been involved in an operation where portable DF (direction finder) beam antennas were being used to track down a transmitter. Or maybe you've been in one of the "fox hunt" hidden-transmitter games enjoyed by amateur radio operators as one of their "radio sports." Well, whether you're hunting clandestine jammers or just finding out where the signals you monitor originate, direction finding can be an interesting and informative pursuit.

Null and Void:

This month we look at a beam antenna design which gives a relatively sharp null (sharp reduction in signal level) when rotated to point at the transmitting station being monitored (See Figure 1). This antenna can be cut for any frequency you wish in the VHF-UHF bands. To find the lengths (inches) of the various components, use the formulas in Table 1.

Let's Make One:

1. Cut the vertical elements from heavy copper wire or other convenient wire or rod.

2. Take a dry piece of varnished wood long enough to hold the vertical elements at the appropriate separation (D in Figure 1). Drill a hole in each end, as shown in Figure 1, to hold the vertical elements. Insert the elements in the wood, leaving 1/4 inch for soldering on the phasing lines at the bottom as shown in Figure 1.

3. Cut the two phasing lines (P1 and P2) 1/2 inch longer than the formula length. This extra 1/2 inch is used where they attach in soldering at each end. I cut my lead-in line to 6 feet 11 inches. For the phasing lines, be sure to use RG-58 coax with polyethylene dielectric, not foam. This is important.

4. Carefully remove 1/2 inch of the outer insulating jacket from each end of each phasing line. Carefully cut away 1/4 inch of the inner polyethylene dielectric leaving 1/4 inch of the inner conductor bare. Be careful that wires from the outer braid do not cross the end of the inner dielectric to touch the center conductor and short out the line. Do these cutting and stripping steps to one end of your coax lead-in cable also. When you have finished this step, you will be ready to put one end of each phasing line and the one end of the lead-in cable together as shown in the inset in Figure 1.

5. Bring the phasing lines and the lead-in together as shown in the inset of Figure 1. Tape them to hold them in place, and solder the shields of all three cables together. Then carefully solder the center conductors of all three cables together. Be careful here not to get the inner dielectric too warm or the shield may short to the center conductor through the dielectric. If you think you are possibly getting it too warm, let it cool before finishing the soldering. Once you are finished, inspect the connections for soundness and freedom from shorts and then tape them over.

6. Overlap the 1/4 inch free end of one of the phasing lines on the bottom of an antenna element and solder in place as shown in Figure 1. Do the same for the other phasing line and the other antenna element. Tape the phasing lines to the wooden boom to keep them from pulling loose at the solder joints.

7. The antenna is now ready to connect to your rig.

Using the Beam:

This beam is designed to be easily carried and rotated by hand. A pole or long stick glued (no metal brackets) to the center of the

Table 1: Formulas to Calculate Element Lengths

<table>
<thead>
<tr>
<th>Frequency</th>
<th>VERTICAL ELEMENTS LENGTH (L)</th>
<th>ELEMENT SEPARATION DISTANCE (D)</th>
<th>1/4 WAVELENGTH PHASING LINE (P1)</th>
<th>1/2 WAVELENGTH PHASING LINE (P2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>146 MHz</td>
<td>19.2 INCHES</td>
<td>20.2 INCHES</td>
<td>13.3 INCHES</td>
<td>13.0 INCHES</td>
</tr>
<tr>
<td>150 MHz</td>
<td>18.7 INCHES</td>
<td>19.7 INCHES</td>
<td>12.6 INCHES</td>
<td>12.0 INCHES</td>
</tr>
</tbody>
</table>

*This beam is designed to be easily carried and rotated by hand. A pole or long stick glued (no metal brackets) to the center of the antenna element can be used to rotate it.*
wood boom of the beam will help you elevate and rotate it easily.

Tune in a station and hold the beam above your head and rotate it. You will notice that there is one place in the rotation where the signal drops off in strength significantly. This is the null. When a null is obtained, the end of the wood boom with the long phasing line (P2) is pointing at the antenna of the transmitting station.

It may be possible to get an even deeper null by leaning the pole holding the antenna boom. Try various angles for the pole to get the best null. Remember that antennas are often not located near the station, but may be on an antenna tower miles away from where the radio station is located.

You can get "false" nulls from reflections from buildings, fences, autos, towers, and the like. So a DF antenna should be used out of doors, well away from such things. Before you trust your readings with the DF, practice on a few stations with known antenna locations so that you are confident that you have mastered the technique required. Taking several null readings from different locations helps determine true direction better than one reading.

A Bonus

Not only can you tell direction with a DF antenna, you can also use the following technique to find the station's location. If, on a single station, you take two or more null-direction readings far enough apart to plot them separately on a map of your area, you can find the location of the station's transmitting antenna at the point where the null lines cross on the map (see Figure 1). Happy hunting.

Call for Antenna-Trivia

Do you have a special bit of trivia concerning antennas? It could be about unusual or weird things which have been utilized as antennas, the strangest or most unusual antenna you ever heard of, interesting uses for antennas, unusual things which have happened to antennas, etc. Send them to me, I'll read them all and report the ones that seem most appropriate for the readers of this column to enjoy. Readers sending in ones judged as outstanding will receive a special certificate of appreciation.

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RADIO RIDDLES

Last Month: We discussed the idea of a reflector element as part of an antenna system. Then you were asked "Where did we get the idea of using a reflector in an antenna, and who used the first radio antenna with a reflector?"

Well, Heinrich Hertz, when he discovered the electromagnetic waves we call "radio waves" knew that radio waves were on the same spectrum as light waves. Being a well-trained physicist, he knew then that reflectors as used in the field of optics would work to reflect his waves if he made them of the correct size and of a conductive material.

He used a metal parabolic reflector to focus his waves in the world's first parabolic reflector microwave antenna. And that, believe it or not, happened in the 1800s.

This Month: In the early days of radio, direction-finding installations depended heavily on a device known as a "goniometer." Many DF installations still utilize a goniometer. So what is a goniometer, anyhow? For the answer, tune in next month.

That's it for this month. Till the next time, Peace, DX, and 73.

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Write On!

MT columnists welcome your response to their columns. It's the way to keep MT lively and up-to-date.

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MONITORING TIMES October 1990 97
Q. Is there any way to extend the frequency coverage of my Sony ICF2010 as can be done on some scanners? (R.W. Austin, Jr., Stratford, NJ)

A. Unfortunately, no. Scanners have that capability because they are manufactured to meet different band plans in different areas of the world. The HF (shortwave) spectrum and aircraft (118-137 MHz) band are the same worldwide.

Q. During times of natural disasters and emergencies—earthquakes, floods, tornadoes, hurricanes—where does a listener find the hams operating relief communications? (Frank A. Vacanti, Boulder, CO)

A. It would be flip to say, "anywhere they want to!", but this is very nearly correct. Different areas have different communications plans, especially when short-range VHF simplex and repeaters are called up. Naturally, all such communications will take place within the FCC allocated amateur radio bands.

For longer distances, there is more organization. During the hurricanes, several frequencies in the 20 meter band are commonly used during major catastrophes like hurricanes. Try 14.325 MHz (disaster reports), 14.283 MHz (Caribbean islands emergency communications) and, for health and welfare messages, listen to 14.275, 14.290 and 14.303 MHz.

At night and for shorter distances during hurricanes, the 75 and 40 meter bands (lower sideband) is utilized; monitor 3907, 3917, 3923, 3927, 3935, 3940, 7247 and 7268 kHz.

For more information about the Amateur Radio Emergency Service (ARES) and Radio Amateur Civil Emergency Service (RACES), write to the American Radio Relay League, 225 W. Main St., Newtown, CT 06470.

Q. Is it possible to "tune around" a memorized frequency on my PRO38 hand-held scanner without having to constantly re-enter new frequencies above and below? (Elliot Morris, Plainview, NY)

A. Not unless the scanner is equipped with an up/down search function, or comes with a tuning knob. Perhaps the PRO38 is capable of such a function but it would not be possible without additional circuitry to support the microprocessor capability.

Q. A local newspaper reported how a hiker used a borrowed radio from a Girl Scout troop on Mt. Whitney to contact a commercial airliner which, in turn, called the National Guard for assistance. What kind of radio could they have been using to contact the plane? (Chris Thompson, LA, CA)

A. It is quite possible they had an emergency locator transmitter (ELT) or emergency position indicating radio beacon (EPIRB), both of which automatically transmit an emergency tone on 121.5 MHz, a commonly-monitored international emergency and calling frequency, when activated.

Q. Is it possible to buy a speech inversion descrambler now that the ECPA is in effect? How about a circuit diagram? (Alex Kazazian, Ashland, OR)

A. Since ECPA is generally interpreted as to make it illegal to possess an unauthorized descrambler, none is presently manufactured in the United States. A schematic of the popular DSC-1 descrambler previously made by Grove Enterprises is available for $2 plus an SASE sent to their address: PO Box 98, Brasstown, NC 28902. Some experience in electronics and a source of parts are required.

Q. Your book reviews, and even some advertisements, often don't specify whether shipping charges are for first class or book rate shipping. How can I know? (Frank Vacanti, Boulder, CO)

A. Books are nearly always shipped book rate or UPS, considerably less expensive than first class.

Q. Is it possible to hook a communications receiver to a satellite TVRO receiver to hear some of those "hidden" signals? (Angus Ashdown, Lexington, MO)

A. Absolutely. Your TVRO receiver probably has a "baseband output" jack; attach the antenna input from a shortwave receiver like a Kenwood, Yaesu, ICOM, or even a Sony ICF2010 or Sangean AT803A. Set the SW receiver to 6.8 MHz upper sideband and start tuning!

If your TVRO system is of the LNB (low noise block down-converter) variety, attach an ICOM R7000 or AOR AR3000 to the 900 MHz output instead.

Q. Is there any way to extend the delay time on the PRO2005 scanner? (James Coble)

A. The delay is a function of the time base crystal. By replacing the crystal (actually a ceramic resonator) with one of lower frequency, you will extend the delay time and slow down the scan/search speed proportionately.

Q. I have noticed an increasing presence of offensive language on the amateur radio bands. Is there any way this can be stopped? (Name withheld)

A. Yes. Recent Supreme Court rulings have upheld more stringent language standards on amateur as well as broadcasting transmissions. Report amateur violations to the Amateur Auxiliary of the American Radio Relay League, 225 Main St., Newtown, CT 06470.

If the ARRL fails to respond, notify your closest FCC field office. If the language is hard core, criminal charges will be filed.

Q. Can you provide me the address of a TV satellite periodical called "Transponder"? (John Stankus, Austin, TX)

A. The Transponder is published by Terra Publishing, Inc., PO Box 460, Salamanca, NY 14779-0460.
Q. I have an old Hallicrafters SX43 receiver which gets shortwave as well as FM broadcasting. Would there be any harm in connecting it to the cable TV line? (E.K., Ft. Walton Beach, FL)

A. None whatsoever. Success will depend upon the bandwidth of the signals present on your cable system. Chances are that FM will work just fine, but good shortwave reception is unlikely. Most cable systems filter out signals below about 50 MHz.

Correspondence

Several readers responded to my comment in the August column in which I said I was unaware of any mobile shortwave converters on the market. The most commonly brought to my attention were two MFJ models, but a check with the factory informs us that they have been discontinued.

Bob Herendeen of Los Altos, California, brought to our attention one model available in kit form, the SC-1, which covers any two shortwave bands. Contact Ramsey Electronics, 793 Canning Parkway, Victor, NY 14565 for further information.

A previous answer concerning an Ontario scanner monitor brought considerable correspondence about the Ontario Provincial Police and the noise heard on one of their channels. Some OPP channels send data transmissions and others transmit the annoying "cloaking" signal to discourage scanner monitoring. Mike Miskell of Ottawa suggests that listeners may wish to use a Uniden BC760XL T with the optional CTCSS tone decoder board and switch installed; properly adjusted to 107.2 Hz, the noise disappears and the scanner operates normally.

Questions or tips sent to "Ask Bob," c/o RT, are printed in this column as space permits. If you desire a reply by return mail, you must enclose a self-addressed, stamped envelope.

Feeling Left Out?

Have your favorite communications (Police, Fire, etc.) moved to the 800 MHz band? Are the scanners available which access this band too expensive? If you are like many scanning enthusiasts, this can be a real dilemma. For those of you who are still in a futile search for 800 MHz coverage on your hand held scanning radio, GRE America, Inc. has a product for you. Introducing the newly developed Super Converter™ II which has all of the features that you have come to enjoy in our Super Converter™ 8001 (810 - 912 MHz coverage, etc.), and more.

The Super Converter™ II has a convenient switch which allows for an instant return to normal scanning frequencies without disconnecting the unit. It is also equipped with BNC connectors for easy adaptability to your handheld scanner. Introducing the Super Converter 8001™ from GRE America, Inc. The Super Converter 8001™ once attached allows any UHF scanning or monitoring receiver to receive the 810 to 912 MHz band.

It has been our experience that most scanning radios suffer from a lack of sensitivity due to antenna and power limitations. Introducing the GRE Super Amplifier™. The Super Amplifier™ is a compact, pre-amp designed to work with scanners and it amplifies the reception of the VHF/UHF bands (from 100MHz to 1GHz) as high as 20db. The Super Amplifier™ has an adjustable gain which is controlled from the back of the unit and allows amplification level of up to 20db through all frequencies, equipped with a bypass switch to return to normal scanning frequencies. As with all other GRE products, you will find the quality and design of the Super Amplifier™ to be of the highest standard. Wide range frequency (up to 1GHz) antenna is exclusively available from GRE America, Inc.

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MONITORING TIMES June 1990 99
your comments and everyone leaves their radios at home?

Better bring along that hand-held, Mark!

Before we forget -- Although the airshow season has passed, scratch these frequencies down in your notebook for next year. Blair Parkhurst of Burnaby, British Columbia, offers these frequencies:

- 251.600 Blue angels 5 & 6
- 275.350 Blue Angels 1,2,3, & 4
- 122.975 Canadian Warbirds
- 120.000 Ray-Ban Gold Aerobatic Team
- 123.575 J. Michael Wiegen in his Cyclone

"Most others at the Abbotsford International Air Show (August 8-11)," says Blair, "use the air show primary frequency of 121.000. Mike Wiegen actually narrates his performance live on the 123.575 MHz frequency."

Brian warns that the Canadian Armed Forces Snowbirds team may be hard to hear. "They appear not to be using any of the 20 frequencies attributed to them in previous years."

Jeff Annis of Bethesda, Maryland, passes along a clipping from the Illinois Times. The article describes the one-year old battle between a blind, black pirate radio operator who, despite a $750 fine from the FCC, has decided to remain on the air. DeWayne Readus -- who now calls himself Mbanna ("I rebel") -- operates his unlicensed FM station from a housing project on the east side of Springfield, Illinois.

Says Mr. Annis, [This is] a story about a pirate with a political cause -- not just a techno-nerd teenybopper playing music or a classical music freak too lazy to get a license. "Katanko isn't only a pirate -- I'll bet he doesn't know what a QSL is --," continues Annis, "but he is certainly more important than much of the junk you write about. Not surprised you missed the story."

Have a nice day, Jeff.

More flack: We print it all, good and bad. "I have never been comfortable with articles that tell readers how to eavesdrop on our law enforcement and military," says Robert Cavdell. "Human nature being what it is, that type of information might not be used in our/mine/your best interest."

"However," continues Robert, "Bob Kay's sophomoric tirade was just too much. If he can't find anything to write about except the cost of President Bush's aircraft expense [sic], he isn't much of a writer. Bad taste."

"So spare me your pious platitudes and cancel my subscription. And while you're at it, remove my name from your mailing list."

At this point Robert's writing becomes unintelligible.

Interested in satellite reception? We've found a freebie you might be interested in. Electronics Specialists, Inc., is offering a reprint of an article called, "Curing Satellite System Electrical Interference & Interruptions." Sources of interference, interruptions and possible damages are described and steps that have been successful in preventing these problems are discussed.

To try to catch up a bit with our featured monitoring posts, here are three of our readers with their equipment.

Alan Johnson, N4LUS, of Bethesda, Maryland, sent this photo of himself and his well-organized shack (equipment not listed)

Ila Hester of Winston Salem, North Carolina, is has all bases covered with her Kenwood R-820-S and ICOM IC-R70 receivers and Regency K100, Z30, Bearcat 150 and 100XL scanners.

Andy Miller, WB0OAF, of Sioux Falls, South Dakota, doesn't tell us what rigs he owns, but as a professional consultant in computer, TV, stereo, and audio equipment, there isn't much he couldn't build or fix!

Why not send us a snapshot of you and your listening post? We'd like to feature YOU in this spot!
To get your copy, simply mention MT when you write: Electronic Specialists, Inc. 171 South Main Street, Natick, Massachusetts 01760 or call toll-free 1-800-225-4876.

"Your" September issue contained an item from Helena Aphadre of Radio Thiisi (p.3). What many Monitoring Times readers may not know is that a journalist from Soviet Georgia, Nugzar Rahadze, has been working with WXIA-TV in Atlanta, Georgia, in a Georgia-to-Georgia journalist exchange.

Rick Dodds, a monitoring enthusiast from nearby Smyrna, Georgia, says that "Nugze has been here in Atlanta for two summers, adding his unusual insight into feature news stories.

You may remember an interview we ran on Don Pitts, the long-time former White house communications director back in May of this year. Pitts was a radio pioneer who in 1919 built his first radio station and who in 1926 started work in the Coolidge White House where, as he put it, "communications was a joke." The blunt-talking Pitts -- he once described Lyndon Johnson as "that jerk" -- retired in 1971 after keeping eight U.S. presidents in touch with the world.

We recently received word that Pitts has passed away at the age of 81, the victim not of his age but of a car accident in Marion, South Carolina.

A number of people have reported hearing the Iraqi shortwave broadcasts directed to the U.S. soldiers in the Saudi desert. The programs, heard on 11860 kHz at 1000-1200, 1600-1800 and 2000-2200 UTC, have had a rather repulsive mixture of blatantly false news, music and mockery. Here's what some readers have heard:

Bill Cintee of Downingtown, Pennsylvania, says that during one hour-long broadcast, the announcer said that oil-rich petrol emirs imported teenage American girls for sexual purposes, harped on the desert heat, quicksand, rising taxes in the United States, war injuries and U.S. soldiers missing in action in Vietnam.

Ken Martin of New York quotes Baghdad as saying: "To the American soldier in the Saudi Arabia desert: Would you like to be one of the people who only lamented in the charity ceremonies? Do you want to go back home from the Arabian desert psychologically broken?"

Still another reader remarked about news reports that told of pro-Iraqi demonstrations "disrupting world capitals."

It's pretty strange stuff, the likes of which haven't been heard since Hanoi Hannah graced the airwaves during the Vietnam war.

"I see that many of the hobby's elite are members of 'Old Crows,' apparently an organization of ex-CIA agents involved in communications," observes Ed Dougherty of Austin, Texas. "I understand that the publisher of Monitoring Times is an 'Old Crow.'"

I think you have him mixed up with someone else.

The term "Old Crow" apparently originated among U.S. radio and radar operators who monitored and jammed enemy broadcasts during World War II. The equipment used to do this was code named "Raven." Those who manned the equipment were called Raven Operators and later became known as Old Crows.

Today the group, subtitled the Defensive Electronics Association, is a non-profit organization with 25,000 members in the U.S. and 45 allied nations. Its declared purpose is to foster a strong electronic defense system.

I am not aware of any "Old Crows" at Monitoring Times. Real clowns, yes. Old Crows, no.

We'd like to hear your comments, opinions, and experiences concerning the world of radio. Please understand that personal replies are not always possible.

Letters should be addressed to the Editors, Monitoring Times, P.O. Box 98, Brattleboro, Czech Republic, 80902. Please include your name and address.

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**CONVENTION CALENDAR**

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Club/Contact Person</th>
<th>Oct 21 Denver, CO</th>
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<tbody>
<tr>
<td>Oct 6-8</td>
<td>Columbus, OH</td>
<td>Columbus ARA/ Special Event Station W6TO</td>
<td>Rocky Mt Radio League/ Fred Brachle NDFK</td>
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<tr>
<td></td>
<td></td>
<td>Certificate awarded for 10 Columbus contacts (W6TO counts for 6)</td>
<td>Jefco Fairgrounds, 15200 W 6th Ave, Golden, 80401-266 (303)697-9496</td>
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<td></td>
<td></td>
<td>Send names, QTH's and signal reports to: Roger Dzwoncyz W8262C</td>
<td>Centralia Wireless Assn/ Louis Hedges W9BL</td>
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<tr>
<td></td>
<td></td>
<td>280 E Longview Ave, Columbus, OH 43202</td>
<td>Route 1 Box 98A, Centralia, IL 62801</td>
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<tr>
<td>Oct 7</td>
<td>Huntington, IN</td>
<td>Huntington Co ARS/ Mike Brooker W9JFC</td>
<td>Tri-County RE/ Bert Elder K2EX</td>
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<td></td>
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<td>3341 E - 722N, Huntington, IN 46750</td>
<td>Location: Hennepin Technical College/Brooklyn Park Campus, 9000 Brooklyn Blvd</td>
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<td></td>
<td></td>
<td></td>
<td>Location: $450 In advance, $6 at door, 7:30am-3pm. Speakers: Ron Parise W4451R,</td>
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<tr>
<td>Oct 8-13</td>
<td>Warner Robins, GA</td>
<td>Central GA ARC/ Jesse Kirkham WB4KQA</td>
<td>Astronaut (schedule permitting), and Wayme Green W2NSD</td>
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<tr>
<td>Oct 8-14</td>
<td>San Jose, CA</td>
<td>Pacific Div Conv/ Emmett Freitas, AE62</td>
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<td>481 Fenley Ave, San Jose, CA 95117</td>
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<tr>
<td>Oct 13</td>
<td>Syracuse, NY</td>
<td>RA of Gt Syracuse (RAGS)/ Viv Douglas WA2PUU</td>
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<td>121 Cleanview Rd, DeWitt, NY 13114</td>
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<td>[315] 456-0590, Location: NY State Fairgrounds, 3 mi E of Thruway Exit 39 off Route 690, 5:30pm-7:30pm.</td>
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<tr>
<td>Oct 13-14</td>
<td>Memphis, TN</td>
<td>Mid-South ARAY/ Harry Simpson W4MH</td>
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<td>183 D McCaulay Ave, Memphis, TN 38127</td>
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<td>Oct 13-14</td>
<td>W Palm Bch, FL</td>
<td>Palm Beach RPr Assn/ James Schoech WD4LHF</td>
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<td></td>
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<td>129 Dayton Rd, Lake Worth, FL 33467</td>
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<tr>
<td>Oct 13-14</td>
<td>Boxborough, MA</td>
<td>New Eng Div Conv/ Eugene Hastings W1VRK</td>
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<td></td>
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<td>18 Churchill Ave, Marblehead, MA 01945</td>
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<tr>
<td>Oct 14</td>
<td>Maysville, NC</td>
<td>Maysville ARC/ JoAnn Taylor WD4LJR</td>
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<td>220 Anita Fort Dr, Swansboro, NC 28584</td>
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<td>Oct 14</td>
<td>Friendship, MD</td>
<td>Columbia ARA/ William Machia N3HTJ</td>
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<td>5127 Columbia Rd, Columbia, MD 21044</td>
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<tr>
<td>Oct 19</td>
<td>Smithfield-Selma, NC</td>
<td>Triangle East A/V/ Harry Greenberg W2AC</td>
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<td></td>
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<td>2401 Covered Bridge Rd, Clayton, SC 29702</td>
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Monitoring Times is happy to run brief announcements of radio events open to our readers. Send your announcements at least 60 days before the event to Monitoring Times Convention Calendar, P.O. Box 98, Brattleboro, NC 80902.
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Closing Comments

Taxation without Representation

It was a great slogan a couple hundred years ago; oddly enough, it is once again appropriate. This time the threat comes from our own states, not from outside our shores.

Mail order is big business. An increasing number of state revenue agencies, sniffing a fresh, new source of increased revenues, are now imposing tax on sales made by their residents through the mails. Even though in 1944 (McLeod vs. Dillworth) the U.S. Supreme Court ruled that states could not levy sales taxes on sales made outside their boundaries, the states are attempting to collect it anyway, calling it a "use tax."

The Supreme Court has held that in order for such a collection to be valid, the states must provide the same privileges and benefits to out-of-state vendors as they would to in-state companies, which they don't. The Court further affirms that such a tax must be uniform throughout the state; often, they aren't.

In spite of the Court's admonishments against such illegal practices, a collusion of states -- admitting its illegality -- are stepping up their nefarious collection procedures through intimidation of small mail order firms, forcing audits of their records and threatening to collect back taxes!

While the motivation behind such brazen, maverick behavior may be to bring test cases to court in an effort to have the law changed, such unconstitutional behavior could move an incensed federal court to punish the offenders, suspending their existing tax-base collection until review. The states appear willing to take that risk.

And if that doesn't work, participating states have formed a coalition of coercion to exchange names and addresses of residents gleaned from those audits who have made out-of-state purchases so that they can be harrassed with additional tax collection!

The Key

In 1967 (Rellas Hess) The Supreme Court ruled that mail order firms are not subject to such taxation because they do not establish "nexus," a significant physical presence like offices, salesmen, and so forth, in other states.

The selective enforcement of the present taxation violates the states' own provisions of equity under nexus. Of seven states' cases so far brought to court as of this writing, all have been struck down in favor of the vendors.

Because the Court has not been sympathetic to the states' quest for new revenue, the states have rallied to get a law passed by Congress. Their champion is Representative Brooks (D-TX) who has sponsored a House Bill, H.R. 2230 for adoption.

The Bill would establish "economic presence" in a state as the criterion for assessing the tax; the vendor's gross receipts, however, would have to exceed $12,500,000 per year or more than $500,000 in a given state. The typical, small, mail order retailer does not meet that criterion.

A Call for Action

Grove Enterprises, a North Carolina mail order firm specializing in radio receiving equipment and publications, sees no legal basis for paying a use tax to other states and has discontinued collecting this unconstitutional financial burden from their customers until directed to do so by federal law.

We recommend that other small mail order firms also refuse to collect these unlawful fees and that residents who have been charged a sales or "use" tax by out-of-state firms press their own state revenue departments, who required that collection -- and have received it from the vendor -- for a refund.

-- Bob Grove, WA4PYQ
Publisher

We would like to thank the Direct Marketing Association (1101 17th St. NW, Washington, DC 20036) for their contribution of background material used to prepare this editorial.
If you order now, you will receive in January the 1991 edition of World Radio TV Handbook, acclaimed by experts and hobby listeners alike as the ultimate source book for international broadcast monitoring. WRTVH remains the best seller in its field, and rightfully so -- it is a giant collection of frequencies, addresses, program schedules, beam headings and other pertinent data concerning every major radio station in the world - longwave, medium wave, and shortwave.

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